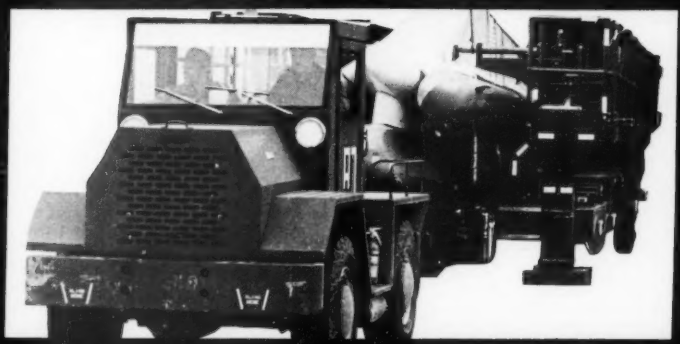
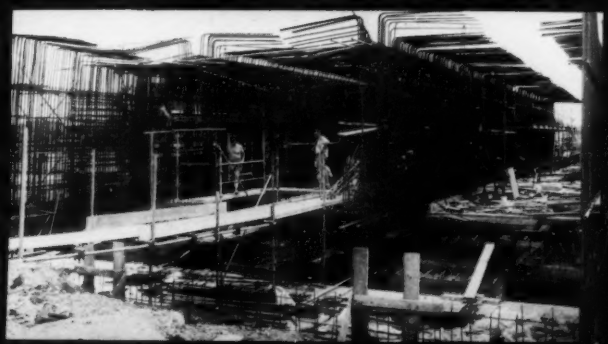
Spring, 1984

AFRP 85-1, Vol. 25, No. 1

Air Force Engineering & Services Quarterly





An Interview with Brig. Gen. Joseph A. Ahearn (Page 24)

Bedding Down GLCM (Page 32) and ALCM (Page 28)

Air Force Engineering & Services Quarterly

AFRP 85-1 VOL. 25 No.1

FEATURES

3 • MOVING FORWARD WITH A STRATEGIC PLAN
8 • Project IMAGE:
STRUCTURING A NEW, DYNAMIC CIVIL ENGINEERING
12 • DEVELOPING SIMS
14 • BAT:
TAC'S APPROACH TO BILLETING EXCELLENCE
16 • THE ENGINEERING SIDE OF FOREIGN MILITARY SALES
24 • Interview:
USAFE'S BRIG. GEN. JOSEPH A. (BUD) AHEARN
28 • ALCM:
MORE CONSTRUCTION FOR THE MONEY — ON TIME!
32 • GLCM:
SUCCESSFUL BEDDOWN IN THE INTERNATIONAL ARENA
34 • THE COMPUTER COMES TO PACAF
38 • GEN. WRIGHT NEW SAME PRESIDENT

Maj. Gen. Clifton D. Wright, Jr.
Director
Engineering and Services
HQ USAF

Col. Jerry A. Smith
Commander
Air Force Engineering &
Services Center

EDITORIAL STAFF
H. Perry Sullivan, Jr.
Editor

Dean M. Spencer
Art Editor

DEPARTMENTS

7 • CESMETtips
10 • CURRENT EMPHASIS
18 • ESQ WORLD
37 • TECNOTES

CALL OR WRITE
The Editor
HQ AFESC/DEJ
Tyndall AFB, FL 32403
AUTOVON 970-6467

DISTRIBUTION F. The QUARTERLY is free to Air Force Engineering and Services organizations, based on one copy for each five members of a unit's total force. Unit commanders establish organizational requirements through the local Publications Distribution Office, using the Air Force Form 764a. Air Force Civil Engineering and Services personnel and elements not assigned to host E&S organizations may receive the QUARTERLY free by providing a statement of need to accompany the AF 764a. Those not eligible for free distribution may purchase subscriptions or individual copies from the Superintendent of Documents, Government Printing Office, Washington DC 20402.

The **Air Force Engineering and Services Quarterly** is an official, non-directive publication of Headquarters United States Air Force, published quarterly under provisions of Chapter 12, AFR 5-1. Its purposes are to

- Attract highly qualified personnel to the Air Force Civil Engineering and Services career fields
- Promote effective training, education, and retention
- Communicate vital concepts, policies and practices which affect the wartime readiness of the United States Air Force.
- Promote professionalism, and devotion to duty.
- Stimulate planning for the wartime survival of our personnel, weapons systems and facilities.
- Develop Air Force stewardship of the well-being, quality of life and facilities support to Air Force personnel and their families throughout the world
- Promote awareness of the efficient, effective and essential facilities needs of the Air Force.
- Transfer knowledge of Air Force Engineering and Services' technical and scientific achievements.
- Promulgate teamwork among the Air Force Engineering and Services' total force.
- Achieve a professional dialogue to enhance the thought, development and contributions of the Engineering and Services team worldwide.

The **Quarterly** editorial offices are at HQ Air Force Engineering and Services Center, Tyndall AFB, Fla. Contributions, suggestions and criticism are welcome. Opinions expressed do not necessarily reflect the official viewpoint of the Department of the Air Force, the Director of Engineering and Services or the editorial staff. Authority to publish this periodical automatically expires in January 1985 unless its continuance is authorized by the approving authority prior to that date. The use of a name of any specific commercial product, commodity or service in this publication does not imply endorsement by the Air Force.

Strategy For Tomorrow

MOVING FORWARD

With a Strategic Plan

by Maj. Gen. Clifton D. Wright Jr.

I've been Director for a little over a year and a half now, so I thought it was about time to give you a State of the Union message — "how goes it" in Engineering and Services from my perspective. Simply stated, I don't think we've ever been in better overall shape than we are right now. But even more exciting than that, I foresee major improvements in many of our critical programs over the next few years.

I say this with confidence for two reasons. First, the senior leadership of the Air Force recognizes the significance of Engineering and Services to the overall mission and supports our initiatives to a greater degree than ever before. Second, for the first time in our history we have a detailed road map which will help us to achieve needed improvement by focusing our efforts on activities that really count. This road map is the Engineering and Services Strategic Plan. In the following paragraphs, I'll tell you a little about the plan and how we're doing on several of our key initiatives.

The Strategic Plan

At the beginning it's important to recognize that this plan is designed to identify and place in context the key components of a very large and complex program. It then goes on to define not only what we must do but how we intend to go about working many of the problems that face us. The plan is not intended to stifle or inhibit creative thinking and innovation. It should be considered as a guide.

The Strategic Plan contains 10 major goals, grouped under four categories, as shown in Figure 1. Each of these goals has one or more objectives that contribute to achieving the goal, and each objective has several specific strategies under it (Figure 2). The plan, which is a dynamic document, currently includes 185 strategies which run the gamut from short-range (1 to 2 years), to mid-range (3 to 5 years), to long-range (5 or more years). Note that the estimated completion date and the offices of primary and corollary responsibility are indicated for each strategy.

We began building the plan in August of 1982 and published it in May of 1983. All levels from base to major command in Engineering and Services made inputs to the Engineering and Services Center and Air Staff. Many meetings were held to adjust contents and completion dates. The end result was a mutually agreed contract concerning what needed to be done, when it would be done, and who would do it.

This collective approach has already returned dividends. This should become obvious as we step through the sections of the plan and look at the progress being made on all fronts.

Resource Management

The involuntary cross-training of experienced people under the PALACE BALANCE program has caused turbulence and concern in our enlisted ranks for some time, but after careful analysis and much work with the manpower and personnel community we have succeeded in at least reducing the magnitude of the problem. PALACE BALANCE will never completely go away. It's required if we are going to give everyone an equal opportunity to compete for promotion. AFMPC, however, has agreed to allow us to participate at MAJCOM level in the selection of cross-trainees and we can exempt individuals who are critical to our mission. Also, we are restructuring selected enlisted career fields to create more positions at the top for our experienced people. This should begin to pay off in the not too distant future.

On the civilian side, the E&S Civilian Career Management Program is going extremely well. The referral system became operational in December of 1983. Over 1,000 key positions in 13 specialties are currently included in this important program that will significantly enhance the abilities of our civilians to advance to higher positions of leadership and management.

Technical training is another area we've been working very hard. We've established much closer working relationships with ATC headquarters and the Technical Training Centers, so that we can identify our requirements and get real-world feedback into the training and educational environments. They have been very responsive to our needs. In 1983, five new courses came on-line at the Tech Training Centers, many adjustments were made to existing courses, and 11 new offerings are under active development. Much of the progress can be attributed to the direct communications between the people needing trained personnel and those providing the training. At the heart of this is the Program Review Committee for technical training, which meets annually at Sheppard AFB. In addition, all MAJCOM directors of Housing and Services meet annually at Lowry AFB to review the curricula for Services courses in the areas of food service, billeting, and mortuary affairs. Both groups make adjustments which keep our technical training in Engineering and Services at a high level of excellence.

The many programs at the Air Force Institute of Technology which benefit Engineering and Services also come before a Program Review Committee. Consisting of all MAJCOM Deputy Chiefs of Staff for Engineering and Services, the committee continues to meet each year at the School of Civil Engineering and, with the Dean and his staff, reviews the entire curriculum and makes adjustments to meet our ever-changing needs.

A long-standing thorn in our side has been a lack of vehicles and the resulting impact on productivity. In the fall of 1983, the Air Force Inspector General began a functional management inspection of our vehicle situation. This comprehensive study, which should be completed this summer, will define problems and tell us where we need to concentrate our efforts to improve the situation. This is a complex problem because it embraces requirements and authorizations as well as availability, age, in-commission rates and utilization. This initiative is identified in the plan, and follow-on actions will be included as a result of the inspection.

While on the subject of resource management, I must mention two additional initiatives that, when completed, may very well revolutionize how we conduct business. I'm referring to the Engineering and Services Information Management System (ESIMS) and to Project IMAGE (Innovative Management Achieves Greater Effectiveness).

ESIMS

ESIMS puts a user-friendly minicomputer (hardware and software) on the manager's desk and essentially gives that person the latitude to use it as he or she sees fit. We completed a successful prototype test of the Engineering portion of the system at Tinker AFB last September and we'll be getting under way with the Services prototype at Davis-Monthan AFB when equipment is available. We have obtained final approval for the system and FY 84 funds have been appropriated to purchase components for the Air Staff, MAJCOMS, AFRCEs, and additional test bases. Funding for base-level systems is evenly distributed across fiscal years 85, 86 and 87. ESIMS is alive and well, including several of its most important elements — the Civil Engineering Materiel Acquisition System (CEMAS) component of WIMS and the Billeting and Food Service components of SIMS.

CEMAS, a new in-house system, is intended to replace all of our current systems such as COCESS and GOCESS. Using CEMAS, we would purchase only selected stocklisted items from Supply. All other items would be purchased locally through Contracting, using buyers dedicated to civil engineering needs. Last August, I obtained agreement in principle from my Contracting and Supply counterparts on the Air Staff to implement CEMAS. The system has been prototyped at Tinker AFB and is currently being fine-tuned. This is one of the most promising innovations I've seen in terms of streamlining our material acquisition procedures. Based on prototype results, the average material acquisition time for all types of work could be reduced by as much as 50 percent at the majority of our bases. CEMAS won't solve the unacceptably long lead times that we experience at some overseas locations, but it will help. We are also working this particular problem, but it's a different ballgame.

FIGURE 1

RESOURCE MANAGEMENT
- Goal 1: People
- Goal 2: Assist Base Civil Engineer/Chief of Resources
- Goal 3: Research, development and acquisition

READINESS AND SUSTAINABILITY
- Goal 4: Contingency planning, procedures, equipment and facilities
- Goal 5: Force posturing and training

MODERNIZATION AND LIFESTYLE
- Goal 6: Modernization of facilities
- Goal 7: Living quarters and food services
- Goal 8: Fire protection
- Goal 9: Environment

ENERGY
- Goal 10: Energy security and efficiency

SIMS, the Services portion of ESIMS, combines revised versions of the Automated Food Service Operations System (AFSOS) and the Automated Billeting and Reservation System (ABARS) that were previously prototyped at Seymour Johnson and Eglin AFBs respectively. The food service portion of SIMS interfaces a point-of-sale cash register with storeroom and kitchen accounting systems. It also provides automated products such as menu forecasting, production control logs and daily accounting records. The billeting module provides a fully automated hotel system, including reservations, front desk, and housekeeping. Follow-on modules will include furnishings management, mortuary affairs, linen exchange and Services administration/orderly room functions. The bottom line for SIMS is improved service to customers, while employing state-of-the-art technology to control resources and enhance management oversight of functions.

IMAGE

The purpose of Project IMAGE is to improve base-level productivity by eliminating as many constraints as reasonably possible and giving managers as much flexibility as we can. We intend to shift management emphasis from process (that is, how a job is done) to results. This is a long-term program which got into high gear last summer, but already we're seeing results in the form of a much more flexible organization proposed for the Operations Branch at base level. Also, results-oriented performance work statements are being considered, which I hope will replace many of our process-oriented regulations that tell you how to do it rather than what to do. Successful processes that lead to desired results will be available in handbooks for optional use. Project IMAGE represents a major change in management philosophy, which will lead to much improved mission support.

We've made significant improvements in our abilities to identify and satisfy requirements for new or improved capabilities across the spectrum of our business. In May of 1983 we created the Requirements and Product Management Directorate at the Engineering and Services Center. The purpose of this group is to identify, consolidate, assign, and track all requirements, and to ensure that related products are acquired and made available to the user in a timely manner. This is the first time we've had a single group chartered to bridge the gap between the idea and delivery to the field. They will also determine whether or not items are available from the marketplace, if an "off-the-shelf" article will do the job, rather than embarking on expensive and time-consuming R&D or test and evaluation programs.

In a vein similar to Project IMAGE in civil engineering, we'll soon be folding new strategies into the Strategic Plan to rekindle initiatives and improve productivity in Services. Although we've made tremendous strides in improving services provided by our people, it appears that we may be losing momentum in several basic areas such as product preparation, presentation, amenities, training and courtesy. The rekindling strategies will primarily emphasize a return to basics in food service and billeting. The outcome should be even better levels of service and further improvements in the quality of life of our forces.

E&S — A Warfighting Component

The Engineering and Services community has never been involved to the extent necessary in the weapons system development process. As a result of our initiatives during the past year, we now have a civil

engineer on the Air Force Scientific Advisory Board (SAB). We also participated in the SAB's 1983 summer study on the advanced tactical fighter and in the Defense Science Board's summer study on air base survivability. The SAB created a special committee to examine the role of Engineering and Services in the employment of airpower, with emphasis on how the air base and the weapon system interact to create warfighting capability — i.e., an operational airfield is as important to the airplane as a tank of fuel or a wingload of munitions. The final report is done and has been distributed to the MAJCOMs. Essentially, it says that our role in the overall warfighting capabilities of the Air Force is crucial and that actions must be taken across a broad spectrum of training, equipping, mission analysis, R&D, and product development and acquisition to assure essential engineer capabilities, both in air base readiness and direct combat support.

Readiness and Sustainability

We've made great progress in new methods for rapid runway repair (RRR). Last August, operational testing validated both the crushed stone and concrete slab methods of primary surface repair, as well as the thin asphalt solution for alternate launch and recovery strips. Very soon we expect to be able to shift to one or both of these new repair methods and away from the labor-intensive and time-consuming AM-2 method. Also, great progress has been made in developing an all-weather, rapid-setting polymer concrete that, in the long run, appears to be the ultimate solution to our rapid runway repair problem.

Because of the changes in RRR, the advent of the Southwest Asia mission, and mismatches in peacetime manpower when pitted against wartime needs, we are in the process of completely overhauling our Prime BEEF team structure. Our target is to put the new team structure into effect on July 1. Simply stated, the new concept will enable us to field a larger number of smaller teams. This will give us needed flexibility and allow us to posture all military personnel not required for strategic withhold.

In Services, the new field laundry being procured will handle nuclear, biological and chemical decontamination of laundry, including clothing. We're also receiving mobile kitchen trailer units which will greatly enhance food service training capabilities and provide the long-missing link for feeding our forces on the flight line and at the small bare base. We also have developed a whole family of audiovisual home-station training materials for Prime RIBS forces. Together with the training presentations also available for our Prime BEEF people, it will enhance our goal to bring consistent quality training to the field, covering all readiness functions. Additionally, we have placed Prime RIBS under the same UNITREP criteria as our Prime BEEF teams to ensure that readiness capabilities are monitored. All of these actions should cause levels of readiness to surge.

Modernization and Lifestyle

This portion of the Strategic Plan tells us how we intend to go about modernizing Air Force facilities to improve combat capability, as well as enhancing the quality of life, through the military construction, operations and maintenance, family housing, and nonappropriated fund programs. We're getting outstanding support on each of these categories at all levels of command and from the Congress. The current funding profile is excellent and out-year programs reflect real growth over inflation (Figure 3).

Military construction this fiscal year (FY 84) is funded at $1.5 billion, which is three times the FY 80 program. We're also authorized to accomplish an additional $300 million worth of projects funded by savings from current and prior year projects as a result of the favorable bidding climate. Of the $1.8 billion total, almost $1 billion is for modernization of our physical plant. The

FIGURE 2

Page from the Original Strategic Plan

Goal 2 • Improve organizational structure, policies, regulations and procedures to enable the Base Civil Engineer and Chief of Services to do their jobs more effectively.

1400 • OBJECTIVE A — AUTOMATED MANAGEMENT SYSTEMS
— Develop, refine and acquire Engineering and Services Information Management Systems (ESIMs) to better serve all levels of Engineering and Services.

1401 • IMPLEMENT BASE WIMS
Prototype the base-level work information management system (WIMS) at Tinker AFB in FY 83 and test at three additional bases in FY 84, and field Air Force-wide by 1987.
OPR:AFESC/AD* OCR:MAJCOMs ECD:8701

1402 • FIELD CIVIL ENGINEERING MATERIEL ACQUISITION SYSTEM (CEMAS)
Field CEMAS as part of WIMS to provide responsible material acquisition for BCEs.
OPR:AFESC/AD OCRs:AFESC/DEM, MAJCOMs ECD:8701

1403 • SERVICES INFORMATION MANAGEMENT SYSTEM (SIMS)
Develop and field an Air Force-wide base-level SIMS at one base in 1984 and field AF-wide by 1988.
OPR:AFESC/AD OCRs:AFESC/DEH, MAJCOMs ECD:8809

1404 • DECENTRALIZE THE DESIGN AND CONSTRUCTION SYSTEM (DEACONS)
Decentralize the DEACONS and expand to the Programming, Design and Construction (PDC) system to include FYDP automated 1391s as part of ESIMS.
OPR:AFESC/AD OCR:LEE-M ECD:8310

1405 • REFINE CIVIL ENGINEERING CONTRACT AND REPORTING SYSTEM (CECORS)
Refine the civil engineering contract and reporting system and incorporate it into the overall ESIMS.
OPR:AFESC/AD OCR:LEEP ECD:8410

1406 • TIMESHARING SERVICES
Develop timesharing services for technical engineering programs and environmental data bases accessible to all bases, MAJCOMs and Air Staff via ESIMS.
OPR:AFESC/AD OCRs:LEEE, LEEV ECD:8701

1407 • IMPLEMENT MAJCOM WIMS
Establish a WIMS at each MAJCOM, AFRCE and at AFESC through leasing in FY 83 and through centrally acquired systems in FY 84.
OPR:AFESC/AD OCRs:MAJCOMs/AFRCEs, LEE-M ECD:8312

1408 • AIR STAFF IMS
Establish an IMS environment and network within AF/LEE to interface with the Air Staff.
OPR:LEE-M ECD:8308

1409 • AUTOMATE LAUNDRY AND DRY CLEANING ACCOUNTING
Develop and implement an operations and financial accounting system at all nine AF Industrial Fund plants.
OPR:AFESC/AD OCR:AFESC/DEH ECD:8410

remaining $800 million is for construction to support new weapon systems and readiness initiatives around the world.

Our goal for all of the military construction projects is a quality product, on time, within the money. Traditionally, we have done a good job of executing our program, but we can do better. We must do a more professional job of planning, programming, designing and managing construction. The challenge is greater now than ever because of the tremendous increase in the size of the program with no increase in manpower to do the job. Although much of this challenge involves the hundreds of average projects, we must also bring the big programs on-line within the money appropriated, while working against tight operational need dates. These include the Space Shuttle Launch Facility at Vandenberg, the Peacekeeper missile program, the ground-launched cruise missile and the Consolidated Space Operations Center. We are doing well with these highly complex projects and demonstrating to the world that we are indeed professionals. Key to our overall success is our ability to work with our design and construction agents, the Army Corps of Engineers and the Naval Facilities Engineering Command. In this regard, we have never had better working relationships. With the Corps and the Navy, our partners in executing the military construction program, we're looking at innovative methods of doing business and I'm sure that our combined efforts at all levels will result in our meeting the goals for big and small projects alike.

At this writing, our FY 84 Operations and Maintenance program is $2.4 billion. This includes everything from civilian pay to the purchase of supplies and payment of utility bills. It also includes about $500 million for contract projects. This latter amount is twice the FY 80 contract program. This rate of increase in funding over the next few years will allow us to reduce the backlog of maintenance and repair projects from $600 million to something around $125 million by FY 89. We have justified these funds to reduce our maintenance and repair backlog and to do a reasonable amount of minor construction. This includes energy-related projects, fire protection systems and other safety-related work.

Fiscal year 1984 funding for family housing is $804 million, including $47 million for new construction and $60 million for improvements. In FY 84, we will test rental guarantee and build-lease programs at two CONUS bases for each of the armed forces, with up to 300 units per base. If this initiative to use private investment capital works out, it could be the key to our problem of replacing much of our old, substandard housing as well as reducing our deficit for new units. In the improvements area, we must work harder to execute our program because our ability to obligate during a given year has a direct impact on the acquisition of funds for the next year. Ways to improve execution are included in the Strategic Plan.

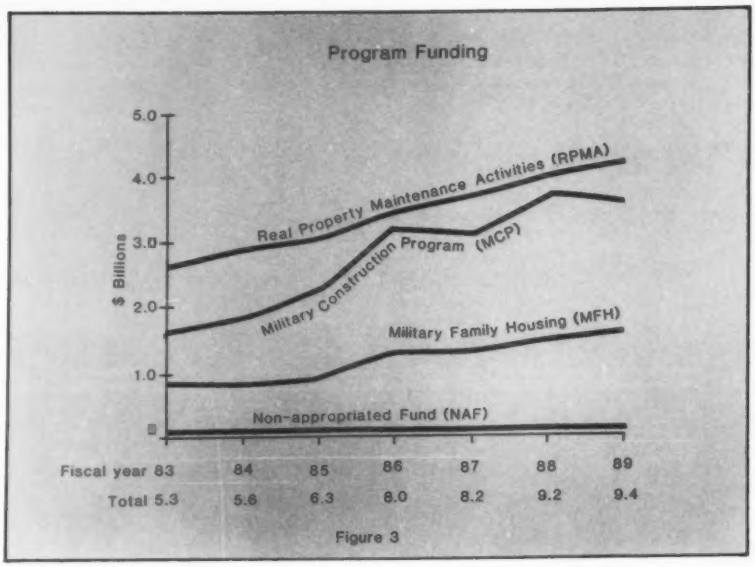


Figure 3

Nonappropriated fund programs include Commissary surcharge projects, Exchange Service-funded projects, Transient Living Facility-funded projects and MWR-funded projects. The Commissary Service is forecasting about $80 million a year for new stores and major upgrades over the next several years. Most of these projects will include a "We Serve" outlet similar to a 7-11 store. The Exchange Service is building or expanding stores on Air Force bases at a rate of $25 million a year. From FY 83 to FY 88, the Air Force Welfare Board is expected to approve some $50 million for 1,300 temporary lodging units worldwide.

Our ability to execute these tremendous programs depends on how well we are led, managed and organized. Initiatives contained in the Strategic Plan, when considered in context, will enable us to do it.

Energy

Energy is included as a major category in our Strategic Plan because it is of vital importance from two standpoints – conservation and security. Energy conservation is as vital today as it has ever been because the cost of energy continues to absorb an ever-increasing share of our O&M budget. This leaves less to maintain and operate our bases. We have several strategies in the plan to reduce consumption. Examples are third-party financing to bring more efficient plants on-line sooner, and programs like House Doctor to save energy in family housing. The highest priority initiative, however, is one that costs us very little. It is to improve the design and operating efficiency of our heating, ventilating, and air-conditioning systems. To achieve this, we've developed new design criteria and instituted advanced training programs for our maintenance technicians. Survey teams have also been formed to ferret out and fix problems and reenergize the recurring work or preventive maintenance program. I'm convinced this will pay big dividends and help us exceed our conservation goals – 20 percent reduction by the end of fiscal year 1985 and a 25 percent reduction by the end of fiscal year 1990, when compared to the 1975 baseline.

Energy security is essential to our wartime mission. We must have the capability to provide energy to critical facilities and operations, independent of commercial resources. The Center recently published and distributed a handbook to assist each command and base in assessing its own energy security posture and we are exploring the feasibility of alternate energy sources to supplement existing commercial or in-house systems.

Summary

As I indicated at the beginning, Air Force Engineering and Services is in excellent shape. We are faced with great challenges but have never been better motivated and prepared to take them on. The Strategic Plan gives us a road map for the future. We must use it as our guide, but not let it inhibit creativity and innovation.

We must also remember that we are in the service business. We have a peacetime mission to serve the customer cheerfully and efficiently. While doing that we must never lose sight of the fact that we are an integral part of the Air Force warfighting machine and, to that end, must be ready to do our job 24 hours a day! Working together we can make it all happen.

CESMETtips

CIVIL ENGINEERING

Base Appearance — Air Force Pamphlet 88-40 depicts standard base signs which enhance appearance. Are you familiar with this pamphlet?
(AF/LEET, Col. Ginnetti, AUTOVON 767-4264)

Your CECORS manager can write retrievals to rearrange any and all of the CECORS data. Here are just a few of the types of listings that the CECORS manager can provide:

- Projects by
  - Base or MAJCOM priority number
  - Building number
  - Work request or work order number
  - Design engineer.
- Listings, including the
  - Construction status of projects
  - Special programs (such as Silver Blade or Coronet Fitness)

Make CECORS work for you!
(Davis-Monthan AFB, Ariz., Mr. Brown and Ms. DiMaria)

CE CONTRACT MANAGEMENT

During the past couple of years, the extent of service contracting and the number of contract construction projects has increased significantly. Adequate surveillance in both of these areas is required to ensure that the Air Force receives quality performance.

Additional manpower to maintain this increasing level of surveillance is at times difficult to obtain. We continue to see many bases working this issue. Among the ways they are increasing their surveillance capability includes using electronic paging devices and authorizing private vehicle vicinity travel by inspectors. These techniques enhance workforce control, section capability, inspector responsiveness, and also provide a cost-effective and equitable way to quickly move the work force to the work site.

How is the surveillance capability at your base?
(AFESC/DET, Maj. Safrit, AUTOVON 970-6115)

MATERIAL CONTROL

Residue Management —

- RHA ADJ transactions appear daily on the PCN 100-481 BEAMS listing. This listing requires appropriate documentation, research and certification. You should be filing PCN 100-481 daily, even those listings with no detailed transaction. The daily file is a complete audit trail of W/O 00010.
- Not enough positions in the nomenclature for residue items filed as PCN 100-485? We agree. For COCESS/GOCESS MRL items, try a multifile retrieval to provide the shops and planners with an expanded meaningful monthly residue listing.
- While big dollars are not beautiful in residue, we believe agressive, sound management is the most important factor upon which to concentrate. See our TIP in ESQ's fall, 1982, issue for suggestions on how to improve your management.

(AFESC/DET, Lt. Col. Munn, AUTOVON 970-6111)

SERVICES

Services chiefs should be aware of their local billeting office policy regarding the issuance of Statements of Impracticability and guidance to travelers on Statements of Adverse Effect. The difference between the two, simply stated, is:

- Impracticability means use of the dining hall was not practical (i.e., due to excessive distance between lodging and base or the lack of transportation, etc.)
- Adverse effect means use of an accessible dining hall would impair mission requirements (i.e., pre- or post-flight duties, maintenance or security duties, etc.)

A key point is "convenience to the traveler cannot be a consideration for issuing either type of special authorization." We suggest a documented meeting with the Base Accounting and Finance Officer to ensure that your billeting policies are consistent with Accounting and Finance and Joint Travel Regulations. It's a good idea to publicize your policy in a handout to travelers as soon as they arrive. This helps to avoid battles with disgruntled customers at the time of departure.
(AFESC/DET, Maj. Wintner, AUTOVON 970-6118)

IMAGE

by Maj. Paul Hains

Webster defines the word image as an impression or a **concept**. In the Air Force civil engineering business, image has several significant connotations. Base appearance reflects the public image of the Air Force. Our responsiveness, professionalism, and quality of workmanship create the image of civil engineering developed by our customers. Our training and ability to meet wartime requirements create an image of readiness and deterrence. Image is important to civil engineering but too often overlooked. It is easy to fall into the trap of day to day micromanagement aimed toward resolving the latest crises, and lose sight of the big picture. We must never lose sight of the role we play in providing the fighting platform for the United States Air Force, the most important image that we must sustain.

There is a new image in Air Force civil engineering. It is a dynamic concept structured toward efficient, productive, and effective management practices. The program keys on results-oriented management by defining the results produced by civil engineering, measuring those results, and identifying and removing constraints that impact efficient accomplishment of those results. To accomplish this massive task, we are performing functional reviews of all of our work centers. A functional review is a workshop that provides a "fresh look" at the civil engineering functions, with the emphasis on performance, not process. Functional review requirements for all service activities were directed by the Office of the Secretary of Defense (OSD) in 1981, based on efficiencies realized under initiatives to contract out functions as called for under Circular A-76 issued by the Office of Management and Budget. It was found that even when the government work center "won" the competition with private industry, a result was streamlining of management and operations. The thrust of the OSD-directed program is a "lean and mean" approach to the mission, eliminating unnecessary tasks and procedures and removing obstacles towards efficient performance.

Air Force civil engineering can benefit substantially from this management approach. How many times have you told yourself, "I could do my job much better if I could do it my way — not the way the Air Force tells me to." That is what this program is all about. Removing constraints and reducing regulated procedures allows base managers to be creative and innovative. This opportunity is highlighted in the program title, **Project IMAGE**, an acronym for, **innovative management achieves greater effectiveness.**

Through IMAGE we are essentially redefining the entire way we approach our business. We began this effort with a macroreview of civil engineering in January 1983. During this review we looked at all of our functions and broke them down to products or results, as a customer might view us. This breakdown was accomplished without regard to organizational structure. The defined products allow us to seek smarter, more efficient, less-labor intensive ways of doing our work. As changes to policies are identified, they will be staffed, reviewed, and implemented.

During our review we took a hard look at the Air Force civil engineering mission statement contained in AFR 85-10 and found it sorely lacking. An integral readiness and training requirement, our principal responsibility, was not even inferred. We also found it very difficult to make any distinction between Air Force and sister service real property maintenance requirements. Yet, we knew our mission was quite different. Both the Army and Navy operate from mobile fighting platforms; therefore, their permanent installations operate primarily as training or logistics centers. The Air Force, on the other hand, operates from stationary fighting platforms, which must be capable of launching and recovering aerospace forces. Therefore, we in Air Force civil engineering are part of the weapons system, and are essential to the fighting capability of that system. This concept is incorporated into the new Air Force civil engineering mission statement:

Air Force Civil Engineering Mission:
Provide the necessary assets and skilled personnel to prepare and sustain global installations as stationary platforms for the projection of aerospace power in peace and war.

The mission statement defines the basic responsibility of Air Force civil engineering, emphasizing the primary requirement of war readiness, the associated training, and total base maintenance. This mission is accomplished with an integrated military and civilian work force capable of rapid transition between our wartime and peacetime roles.

We analyzed our mission and boiled down the myriad of things we do into eight product areas. These product areas define what we do and provide the basis for productivity measurement using resource input/ output relationships (Figure 1).

The core product of base civil engineering is ensuring a state of readiness. All remaining product areas contribute directly to the Air Force mission, with the exception of provide technical and management service. This product area is consumed internally within base civil engineering and provides necessary technical, production, information, and resource management services that enable accomplishment of the other seven mission-related products.

At this point, you are probably thinking "So what? What does this concept do for me in base civil engineering?" The thrust is that, for the first time, we will be able to define what we do without regard to the process. The significance is that we can relate resources (input) to each product area and develop performance standards (output) for those products. Thus, with the aid of computer support (to accomplish number crunching) we will be able to relate performance/cost (output/input) and truly perform productivity analysis of base civil engineering. Further, we can define the level of effort directed towards readiness. By defining our readiness effort as direct mission support (versus indirect, as it is classified today) we can provide a more realistic picture of the Base Civil Engineer's readiness role.

The product area concept provides a view of our business that enables a direct resource to mission relationship. In this regard, we can evaluate the impact of constrained resources and inflexible procedures on productive output. In other words, we can systematically evaluate constraints that reduce our capability to perform in the most efficient manner.

Several initiatives are being worked, designed to improve base level flexibility and remove constraints to productivity. Briefly, these initiatives are as follows:

Figure 1

100% BCE Effort

Vehicle Acquisition

Having insufficient vehicles to get maximum usefulness from our limited work force is recognized as the number one constraint against productive employment of the O&M shops. Our people need vehicles to get from job to job, and to better manage the productivity of contractors. Tables of Allowances which control the allocation of vehicles are based on hauling requirements, mileage, etc., with little regard to productivity enhancement of the work force. The Air Force Inspector General is currently conducting a FMI which will define the extent of this problem. We will follow this action with a productivity impact study, with the goal of basing TA allowances on vehicle/personnel ratios for each shop; for example, one vehicle per 2.5 electricians. We envision improvements in the vehicle aquisition process and local lease/rent options to satisfy our vehicle needs.

Manpower Flexibility

A **families of standards** concept is being developed for base civil engineering. Simply stated, families of standards provide an aggregation of manpower standards, allowing local managers to move authorizations between work centers. We expect to implement this flexibility this year.

Organizational Flexibility

Through the years we have learned that a single organizational structure will not meet all MAJCOM or base mission requirements. Our objective is to provide simplified organizational structures that provide local/MAJCOM placement options of standard functional elements. A reorganization of the Operations Branch is currently being developed, using this concept, to be released to field activities later this year.

Multiskills

Increased capability of our craftspeople can be realized through multi-skill application of certain trades. We are studying utilizing journeymen with multiple skills with visions of grade enhancement, reduced overhead requirements, and reduction of our war skill shortfalls. We are reviewing heating, ventilating and air conditioning; scheduler-controller; and pavements-equipment combined skills.

Proficiency Training

Initial training of our military and civilian personnel rivals the best available. However, we recognize that formal proficiency training directed towards current state-of-the-art techniques is lacking. As we look around our bases, we see new sophisticated mechanical and electrical components that support advanced computer and weapons systems. These systems represent new operation and repair technologies. In many cases the knowledge and skills required goes far beyond the initial training provided for our technicians. This is evidenced by the **old timer** who feels intimidated by these new "Buck Rogers" systems. We must develop new proficiency training programs to ensure our people have the knowledge to meet the challenge of the electronic and computer age.

Many other initiatives will get attention under IMAGE, such as our need for up to date equipment, supplies, and communications. These initiatives are contained in the Engineering and Services Strategic Plan and are directed towards improving the foundation of base civil engineering.

Project IMAGE will charter the future management concepts, policies, organization, and performance of base civil engineering. It is envisioned as a 3-year effort, with a dedicated staff at HQ AFESC/DEMG, to take maximum advantage of the opportunities of this program. It is a mammoth undertaking, but an effort drastically needed to improve base-level activities. You can be involved through workshop activities and by writing or calling HQ AFESC to give us your ideas for better management. We, indeed, have a unique opportunity under Project IMAGE to make breakthroughs in base civil engineering management and work force performance.

Maj. (lieutenant colonel selectee) Paul W. Hains III is Chief of the Management Division, Directorate of Operations and Maintenance, Air Force Engineering and Services Center, Tyndall AFB, Fla. He graduated from the Citadel in 1968 with a bachelor of science degree in Civil Engineering. He earned the masters degree in Systems Management from the University of Southern California. Since commissioning through AFROTC in 1968, he has served in Hawaii, Alaska, Virginia, and at Tinker AFB, Okla., where he was Chief of Resources and Requirements, later the Chief of the Operations Branch for the Base Civil Engineer. He is a member of the Society of American Military Engineers and the American Society of Civil Engineers.

Directorate of Engineering and Services

Current Emphasis

MANAGING O&M MINOR CONSTRUCTION –
The authority for $200,000 O&M minor construction projects has expanded flexibility to support the Air Force mission. Approval of the increased authority was not without Congressional concerns that we would use that flexibility to divert funds from maintenance and repair. The Air Force policy of limiting each major command's minor construction to 15 percent of the facility project program is a reasonable price to pay for the added flexibility. Overall, our track record of remaining within the limit in fiscal year 1983 was not very good. Fiscal year 1984 must be better if we are to maintain our credibility and expect continued support for increased maintenance and repair funding. (AF/LEEPP, Maj. Junkin, AUTOVON 225-7774)

TWO NEW PUBLICATIONS –
- Soil Stabilization Manual—A new Chapter 4 for Air Force Manual 88-7 has been completed.
- A Recycling Manual that outlines techniques and procedures for design and construction of recycled pavements is being published under the designation of Chapter 6, Air Force Manual 88-6.

Copies of both should be available from Publications Distribution Offices in June. (AFESC/DEMP, Mr. Greene, AUTOVON 970-6334)

PAVER, an airfield pavement maintenance management system, will become mandatory for management of airfield pavements as the E&S WIMS computer hardware becomes available. Training is available through the Army Corps of Engineers Civil Engineering Research Laboratory and the American Public Works Association. When training schedules are available, they will be forwarded to MAJCOMs. For MAJCOMs and bases with computer terminals, the COE now has a contract with Control Data Corporation for computer time-sharing services. Users must have a CDC computer account to access the PAVER system. (AFESC/DEMP, Mr. Millard, AUTOVON 970-6333)

PERMISSIVE TDY
may be approved to permit engineers and architects to travel to national or state agencies, as appropriate, to take examinations for certification and licensing, according to Air Force Regulation 35-26, "Permissive Temporary Duty," Attachment 1, Item 25. (AFESC/DEMG, Lt. Col. Beauchemin, AUTOVON 970-6370)

SERVICES INFORMATION MANAGEMENT SYSTEM (SIMS)
prototyping at Davis-Monthan AFB, Ariz., has been delayed until at least Summer, 1984, by an Air Force-wide moratorium on leasing data automation equipment. Once the outstanding issues are resolved, prototyping will begin. Meanwhile, software development at the Air Force Data Systems Design Center, Gunter AFS, Ala., is proceeding for Food Service, Mortuary Affairs and Prime RIBS. The Billeting module was completed in December. (AFESC/AD, Capt. Cox, AUTOVON 970-6025)

INSTALLATION RESTORATION PROGRAM PHASE IV
management guidance to implement the remedial action phase has been prepared and forwarded to MAJCOMs. It offers a consistent approach to correct environmental hazards related to past disposal practices. Guidance scope includes program management, evaluation of alternatives, development and implementation of the remedial action plan, financial management and public affairs. (AFESC/DEVP, Mr. Lindenberg, AUTOVON 970-6193).

ENERGY AWARENESS DECAL –
A 4-inch decal of the multicolored energy awareness logo is now available. The decal can be ordered through the Publications Distribution Office. It is listed in the Dec. 16, 1983 Publications Bulletin PB 25 as AF Form 111, Energy Conservation Decal. (AFESC/DEB, Mr. Beason, AUTOVON 970-6461)

RAILROAD MAINTENANCE –
An 8-day training course on track and structures fundamentals is available through the Transportation Safety Institute. FY 84 courses begin June 11 and Sept. 10. For registration, contact Mr. Inabinet, Area Code 202, 426-4301. There is no registration fee. (AFESC/DEMP, Mr. Greene, AUTOVON 970-6334)

NEW PRIME BEEF STRUCTURE –
A revised Prime BEEF team structure has been approved for implementation at base level on July 1. AFR 93-3 is being revised to reflect the new structure. Until publication of the regulation, details for implementation of the program should be obtained from parent MAJCOMs. (AFESC/DEO, Maj. Bittner, AUTOVON 970-6738)

BILLETING TRAINING –

The Air Force Welfare Board has made $30,000 available to develop videotaped billeting training programs for Air Force-wide distribution. Initially, commercially available training programs will be purchased for reproduction and dissemination. As a follow-on, Air Force training tapes may be developed on-location with MAJCOM assistance. Action is also being taken to add appropriate videocassette players to the list of equipment authorized in billeting offices under Table of Allowances 414. (AFESC/DEH, Lt. Col. McSwain, AUTOVON 970-6184)

AFR 90-9 REVISION –

Representatives from all MAJCOMs met at Tyndall AFB in January to resolve several major issues prior to final staffing and approval of the revised AFR 90-9, titled Unaccompanied Personnel Housing and Temporary Lodging Facilities. The revised regulation expands guidelines on billeting service charges, introduces a standardized billeting reservation system, and emphasizes the requirement to attain standards of quarters and customer service comparable to that found in commercial lodging facilities. Publication and distribution of the revision are expected this summer. (AFESC/DEH, Maj. Honeycutt, AUTOVON 970-6183)

BILLETING AND DORMITORY MANAGEMENT FUNCTIONAL REVIEW –

Functional reviews of billeting and dormitory management activities are underway to identify and recommend productivity enhancements, determine whether or not existing manpower standards are adequate, and develop draft Performance Work Statements and Quality Assurance Programs. The review process has begun. MAJCOM and base-level representatives from both functional areas have participated in a functional review workshop at Tyndall AFB. Progress of the functional reviews can be followed by contacting MAJCOM DEH offices. (AFESC/DEMG, CMSgt. Allen, AUTOVON 970-6400)

FOOD SERVICE FUNCTIONAL REVIEW –

The functional review of Food Service activities is currently in the manpower standards development process. After a successful test measurement at England AFB, La., food managers from 25 other locations met in January, 1984, to learn measurement procedures and lessons derived from the test measurement. Management Engineering Teems (METs) began collecting data and measuring workloads in February, and were scheduled to complete their work in May. The data will then be forwarded to the Air Force Engineering and Services Management Engineering Team (AFESMET) for analysis, computation and development into new manpower standards for food service supervision and the operation of dining facilities. (AFESC/DEMG, CMSgt. Allen, AUTOVON 970-6400)

USAF GRAZING AND CROPLAND MANAGEMENT PROGRAM –

To the maximum extent compatible with operational and other military land use requirements, DOD and USAF policies promote agricultural use of suitable land through leasing and product sales. Public Law 97-321 provides that receipts from grazing and cropland leases and from product sales may be used to cover administrative expenses of leasing, and to finance multiple-use land management programs. A policy letter from HQ USAF/LEE, dated Dec. 15, gives priority to those installations having current or potential agricultural leasing and product sales programs, and to those purposes having substantial long-term benefits. The letter also provides details on authorized expenses and financial management processes. (AFESC/DEV, Maj. Long, AUTOVON 970-6240)

CIVIC ACTION TEAM (CAT) –

AF will solicit volunteers for a follow-on CAT to serve 8-months TDY as front-line ambassadors of the USA in the trust territories of the Pacific Islands. Because of the remote location personnel selected will receive credit for an overseas short tour, with new overseas selection and return, and arrived station dates. Required AFSC and grades are – 5525, captain; 54XXX or 55XXX, E-8 or E-9; 54270, E-6 or E-7; 55171, E-6 or E-7; 55273, E-6 or E-7; 55275, E-6 or E-7; 55370, E-6 or E-7; 47271; E-6 or E-7 and 90270, E-6 or E-7. Interested personnel who meet requirements should contact their CBPO after 1 June 84 for details. Applications must arrive at Hq AFESC/DEO NLT 23 Jul 84. (AFESC/DEO, Lt. Col. Furney, Autovon 970-6145)

QUARTERLY FIELD CIRCULATION –

It is up to the unit commanders to ensure that the ***Quarterly*** is properly distributed and is available to all personnel including active and reserve military personnel, and civilians paid from the general schedule and the wage board system. The AF 764a is the proper document to adjust or initiate circulation with the local Publication Distribution Office. (AFESC/DEJ, Mr. Sullivan, AUTOVON 970-6467)

LETTERS TO THE EDITOR –

The ***Quarterly*** encourages letters dealing with past articles, subjects which should be covered in the ***Quarterly,*** or contemporary issues. The editor will attempt to find an answer for all mail. It may not be possible to print complete letters or all answers. Mail intended for publication should be addressed to: "Letters to the Editor," HQ AFESC/DEJ, Tyndall AFB, Fla., 32403. The author's name, grade or rank, organization and telephone number should be given. If the author wishes to remain anonymous, it should be indicated. The ***Quarterly's*** goal is to provide helpful information to E&S people in the field. Letters provide one avenue of specifically answering the interests of the readership. (AFESC/DEJ, Mr. Sullivan, AUTOVON 970-6467)

Services Information Management System for Billeting

by Mrs. Eleanor Linder and Maj. Jim Blanco

The Air Force has been moving toward automated systems for Services since the 1970s. Present automated systems evolved from food service **a la carte** testing in the 70s, the Automated Food Service Operating System (AFSOS) prototype at Seymour Johnson AFB, N.C., and the automated billeting test at Eglin AFB, Fla. There has been a change in management philosophy as equipment applications evolved:

- **A la carte** equipment was a point-of-sale terminal-based system with applications to inventory control and planning.
- AFSOS was a quantum leap forward with integrated menu planning, inventory and production control, accounting data, and management analysis products.
- Automated Billeting, as tested at Eglin, was a specific application of a hospitality-oriented computer system adapted from off-the-shelf hardware and designed for a single base management system.
- Services Information Management System (SIMS), the latest concept, pulls together lessons learned from all earlier testing and provides a system capable of automating services management. This article deals only with billeting innovations developed for the SIMS.

SIMS will eventually benefit billeting functions Air Force-wide. It is designed to improve resource controls and relieve managers of routine tasks, such as reservations, allowing them more time for customers, guests, employees, daily management and long-range planning. The basic concept of the system calls for reservation requests, guest registrations and other management information to be entered into the computer on a "real-time" basis instead of being handwritten or typed and manually processed. Data processing screens on the system's terminals are designed for easy on-line entry of data and quick retrieval of the same information in a variety of formats and reports. The system will automatically post room charges, produce guest folios and generate standard reports.

The Tiger Team

A lot of work went into the SIMS development. Seventeen base-level billeting specialists, three computer specialists from the Air Force Data Systems Design Center (AFDSDC), and members of the HQ AFESC staff were brought together at Tyndall AFB, Fla., and molded into a "tiger team" in April 1983 by Maj. Frank Blau, an Air Force Reserve officer. For more than 90 days the team worked from 4 p.m. to midnight or later, including many weekends, to develop the basic system design for the SIMS. The billeting subsystem, which represents a major portion of SIMS, was later refined by the the Data Design Center and AFESC staffs working from Oct. 31 to late November at Gunter AFS, Ala.

The Billeting Module

One of the principal achievements of this effort was the billeting module, which provides opportunity for extensive interaction between the computer, the worker, and the customer. Within the system software, there is interaction between the various files and records. The core of the module is a base-unique master room file that is loaded into the computer with a separate record for each room. Each record will contain specific data that allow management of the rooms from the standpoint of reservations, registrations, housekeeping and accounting. As each room record is entered, the software program automatically builds the space and room availability files.

Each room is assigned a five-digit room code which provides the means of managing, reserving and assigning the various types of rooms. The first digit of the code is "O" for all types of visiting officer quarters (VOQs), "A" for all types of visiting airmen quarters (VAQs), "F" for temporary lodging facilities (TLFs), and "P" for aerial port quarters (APQs). The second and third digits are used by billeting managers to identify subcategories such as distinguished visitor suites, air crew quarters, student quarters, wings or bays within a building used for women only, rooms with kitchens, etc. The last two digits will indicate the rated capacity of the room and whether the bath is private (P), shared (S) or a central latrine (C). For example, a VAQ located in a room-bath-room configured dormitory, used primarily for air crew members, rated at two airmen per room, would have a room code "ACR2S."

Space Availability

The heart of the reservation portion of the billeting module is "space availability." When the record of each room is loaded to create the Master Room File, the space availability file is created by the system to show the number of available bedspaces within each room type. If a VOQ with 50 rooms uses 10 for air crews and 40 for other TDY quarters, they would have 10 "OCR1P" and 40 "OTD1P" bedspaces. However, a VAQ with 50 rooms that uses 10 for air crew and 40 for other TDY quarters would have 20 "ACR2P" and 80 "ACR2S" bedspaces. These examples assume that the VOQ has private baths and the VAQ has shared baths.

As a reservation is made, space in a particular type of room is reserved (rather than a specific room number) and the number of bedspaces within that room type is reduced for each day of the reservation. The system also reserves space based on the grade and the sex of the guest. Since senior NCOs are entitled to private rooms, space availability is reduced by two bedspaces instead of one if the room type has a rated capacity of two. Likewise, since males and females are not assigned to the same room or to rooms sharing a bath, space availability is maintained separately for each sex and adjusted individually depending on the sex of the guest.

Reservations

In most cases, SIMS will allow the billeting clerk to immediately inform a caller about the availability of on-base quarters or contract quarters. When the space availability file indicates neither type of quarters will be available, the caller can be advised that a certificate of nonavailability will be issued in lieu of government-provided quarters. The system will handle individual and group reservations with equal precision. The guest's name, arrival date and length of stay, etc., can be entered in the computer and the reservation confirmed while the caller is on the phone. For frequent TDY visitors, information can be retained in the system for quick recall in conjunction with future reservations.

Guest Registration

When guests arrive, registration is simplified since the clerk can quickly display the guest's reservation on a terminal screen by entering one or more letters of the last name. Then, using a list of vacant clean rooms displayed on the screen, a room number is assigned and a registration form with the guest's name and other required information is immediately printed, ready for the guest's signature. If a guest should arrive without a reservation, pertinent information is entered at that time to register the guest. Provisions for express checkin procedures are also included in the system to speed the registration of unexpected group arrivals.

Housekeeping

When guests are registered, the room status changes from vacant to occupied. A report, printed each night, listing the status

DEVELOPING SIMS

of each room, is used by the housekeeping department to determine which rooms are occupied, and whether the guest is checking out the next morning or staying over. The reports are separated by individual housekeeper's work area and are ready for distribution to the housekeepers when they arrive each morning.

As the rooms are cleaned throughout the day the supervisor changes the room status from **dirty** to **clean** through the computer terminal located in the housekeeping section. Maintenance work orders are also put into the system and monitored by the supervisor. The room is blocked if the problem is serious enough that the room cannot be used.

Express Check Out

Room charges are added daily to each guest record stored in the computer. Long-distance charges are posted by the clerk as they occur and the tax is automatically computed and added to the guest record. Sales of beverages and sundries are posted as they occur. If sales occur at the counter, they are posted immediately. If there is an honor system for supplies located in the rooms, sales are posted with restocking. Thus, all income is recorded at the time it is earned and guest accounts are ready for payment at any time. This feature greatly speeds checkout procedures. At least one of the terminals has a cash drawer, receipt printer and folio printer, and operates as a cash register, in addition to performing all other front desk functions. If the room charges are to be paid by the guest's unit, such as Air Force Reserve or Air National Guard, the amount is transferred within the system to a separate account. The system produces unit bills and maintains accounting records of payments and balances.

Retrievals and Reports

All accounts receivable are maintained in the system in constant trial balance, which can be easily verified at any time. Cashier reports are prepared at the beginning and end of each shift, and detailed end-of-day activity reports are prepared at the push of a button. Built-in cash controls and accounting features assist management to ensure all funds are accurately reported and recorded. Occupancy data by grade categories are accumulated daily, monthly, quarterly and annually for preparation of reports.

Numerous other features improve management and customer service. When a guest receives a phone call, the name scan on the screen quickly provides the room number and extension, or if staying offbase, the hotel or motel and phone number. Lists showing the anticipated arrivals and departures for each day alert the manager when guests have not arrived or departed as scheduled. The manager can then investigate and cancel or extend reservations as appropriate. The system will also print authorizations for guests to use contract quarters and will print nonavailability statements.

Many other programs are available to help the billeting manager and supervisors manage their functions. All information may be viewed on a terminal screen and printed for temporary or permanent retention. The flexibility of the SIMS system will provide managers virtually unlimited management applications.

Following a prototype system scheduled for Davis-Monthan AFB, Ariz., SIMS will be centrally purchased and installed at all major Air Force bases. Present plans call for 18 bases to receive SIMS in 1985, with the remainder scheduled through 1989.

Eleanor R. Linder is assigned to the Services Division, Directorate of Housing and Services, HQ AFESC. She is a general manager in the Unaccompanied Personnel Housing Program. She has served in Air Force housing positions for more than 20 years. Her assignments have included Strategic Air Command, Offutt AFB, Neb.; Travis AFB, Calif.; and Hahn AB, Germany. She is a board member of the Professional Housing Managers Association and a recent honor graduate of the Air War College seminar program.

Maj. James R. Blanco is Chief of the Services Support Branch in the Directorate of Housing and Services, Headquarters AFESC, Tyndall AFB, Fla. He previously served as the Services Staff Officer on the Civil Engineering and Services Management Evaluation Team. He came to Tyndall AFB from Spangdahlem AB, Germany. He holds the bachelors degree in Business Administration from Memphis State University, and the masters degree in Human Relations and Management from Louisiana Tech. University.

BAT TAC's Approach to Billeting Excellence

BLUEPRINTS of the Tyndall AFB, Fla., visiting officers' quarters are examined by Pat Christopher, a member of TAC's BAT from Langley AFB, Va.

by Lt. Col. George T. Murphy

To some people, a BAT is a creature of the night; to others, it's a baseball player's friend. In the Tactical Air Command, it's neither; a BAT is the command's Billeting Assistance Team.

The BAT was chartered by the TAC commander to visit each base over a 2-year period and provide assistance to ensure that our billeting services parallel commercial motel operations. The task, given to us in July 1983, was to develop a benchmark and provide each base a program for attaining the benchmark standards.

To develop the benchmark and a baseline to start from, we approached billeting as a system. We analyzed the billeting process and identified each process as a subsystem which supports the total operation. Eight general subsystems were identified which determine how effectively the billeting system is operating. The eight are:

- Command support
- Management
- Training
- Nonappropriated fund (NAF) management
- Customer services
- Projects and programming
- Interior design and layout
- Maintenance and repair of facilities/utilities

The next step was to establish the benchmark; that is, the need to state where we want to go, and how we get there. After trips to Headquarters AFESC and the **school house** at Lowry Technical Training Center, we visited the Holiday Inn, Myrtle Beach, S.C., where one of our individual mobilization augmentee (IMA) Services officers is the general manager. Here we looked at commercial management practices from facility maintenance to room amenities. We came away with some excellent training programs for the desk clerks and housekeeping staff.

MANPOWER standards are reviewed by Dan Whitaker and Sgt. Pamela Metcalf, both members of the TAC BAT.

Implementation

Standards desired for the command billeting program were published in the TAC supplement to the billeting regulation (AFR 90-9). We established standards for both furnishings and customer services for visiting officer quarters (VOQ), visiting airmen quarters (VAQ) and temporary lodging facilities (TLF). Customer services included room amenities, guest information, and items which must be offered for sundry sales. Also included were requirements for appropriate landscaping and exterior lighted signs to identify the billeting office. Another requirement was added for a snack/vending area that included a microwave oven. Required amenities included two 25-by-50-inch bath towels, a face towel and washcloth, soap that is not less than 1 ¼ ounces per bar, an ice bucket, and hotel-style clothes hangers.

REGISTRATION FORM is discussed by CMSgt. Roy Tibbs, Pat Christopher and Darnella Campbell, all members of TAC's BAT.

INTERIOR DESIGNER Christopher measures available floor space at Tyndall's billeting office.

Having established a level of operation, we needed to evaluate how our bases compared to that level and what was needed to obtain a professional operation. Using the system/subsystem approach, we formed the Billeting Assistance Team. We identified staff experts in each subsytem area as team members -- a team chief (DEH), two billeting management specialists (DEHH), an interior designer (DEEI), a nonappropriated fund accountant (DPS), a structural engineer (DEM), and a programmer (DEP). All individuals were capable of thoroughly analyzing their particular areas and developing a program for improvement, which ultimately would become part of the total billeting system.

Test and Evaluation

Needing to test and evaluate our concept of operations, two bases were visited where we could apply the concept to actual operations. We were successful in that we had developed a method of analysis whereby we could provide TAC bases an individual program to attain desired standards.

All BAT members were chartered to evaluate their particular specialties. Collectively, a program was developed in the form of a report covering observations and recommendations. For example, the structural engineer looked at the heating, ventilating, air conditioning system (HVAC) in each facility and identified required work, either in operations and maintenance (O&M) or under the Energy Conservation Improvement Program (ECIP). The programming engineer reviewed current and future projects in light of needs and modified, revised or developed projects to match requirements. The management specialists, in concert with the programmer and structural engineers, made recommendations for conversion of facilities or upgrade after reviewing occupancy data. The interior designer reviewed proposed furnishings upgrade packages for future procurement, made recommendations, and provided plans for better use of the existing furniture and fixtures for optimum aesthetics.

Two training seminars were conducted during the visit with front desk clerks and housekeepers. Visual aids such as movies and slides were used and sessions usually concluded with very effective question and answer periods. The management specialists also took along "show and tell" items which included everything from uniforms for billeting employees to samples of soaps, customer information brochures, ice buckets, and colored towels.

BAT Concept

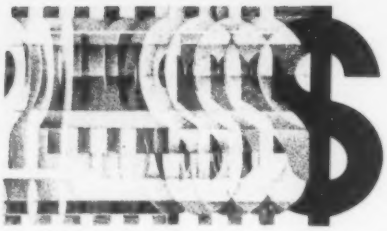
The team will visit each base for a week; those bases desiring an assistance visit are being accommodated first. An inbriefing is conducted with the installation commander and his Services officer, BCE, billeting manager, etc. Team members are introduced and our concept of operations is explained. During the inbriefing, we solicit the areas of most concern to the commander. We try to solve those problems first. During the work day members conduct business with their base counterparts and crosstalks are held in the evening, at which time we begin to develop a program that is collectively analyzed and discussed. During the week, 35mm slides are taken of all facilities, rooms, lobby, etc., and are used to brief the TAC staff upon return and for historical documentation of the trip. Before leaving the base, a report is written in draft format which encompasses observations and recommendations for training, programming, NAF, etc. On the last day, the wing/base commander is outbriefed and provided a copy of the draft report; the Services officer and BCE also receive a copy of the report. Upon return to HQ TAC, the report is discussed with the affected directors and the DCS/Engineering and Services. When finalized, the report is sent to the base and becomes its formal program. Periodically, the TAC commander is briefed on our findings, recommendations and observations.

Four TAC bases have been assisted to date, and the team's effectiveness has improved with each visit. Installation commanders welcome the BAT's asssistance and have complimented the team approach used to improve the command's billeting operations.

Although the original team functional mix provided an excellent microscopic analysis of billeting and facility management, the capability to evaluate manpower requirements, grades, and military/civilian mix was limited. Future visits will include staff manpower and civilian personnel specialists. These additions will enhance the Billeting Asssistance Team's capabilities to provide assistance in future visits.

Lt. Col. (colonel selectee) George T. Murphy is the director of Housing and Services, HQ TAC. Colonel Murphy attended Air War College in residence prior to this assignment. Other assignments include duty with HQ AFESC as Chief, Services Contingency Planning; and Chief, Food Management Division; the AFLC IG team; and services squadron commander. Colonel Murphy holds a bachelor of science degree in Business Administration from Boston College and a master of science degree in Business Management from the University of Arkansas.

MORE FOR THE MONEY



The Engineering Side of Foreign Military Sales

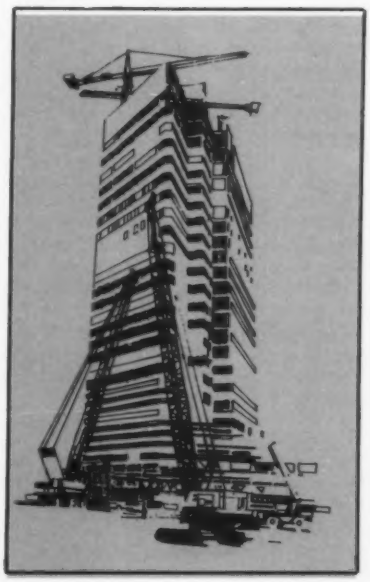
by Lt. Col. William D. O'Bar

The expression "more for the money" as it relates to Air Force construction typically suggests more or better facilities for less cost. This article addresses "more for the money" in a unique way in which additional facilities are, in fact, provided for no additional Department of Defense (DoD) money — facilities which are parts of larger weapons systems programs to provide stability and security to other countries. These programs have far-reaching effects in contributing to world order and the national security interests of the United States, yet tend to minimize costs which would be incurred if the U.S. had to position its own forces to make an equivalent contribution to world peace.

Since the mid-1970s, engineers at Headquarters Air Force Logistics Command (AFLC) DCS/Engineering and Services have been engaged in providing facilities to support various weapons systems sold through the U.S. government to our foreign friends and allies. The initial sizeable involvement was with the sale of the F-5 aircraft to the Royal Saudi Air Force. Since that time, the Foreign Military Sales (FMS) Construction Division in Engineering and Services has become a design and construction management organization which ranks within the top 30 such organizations in the United States in terms of annual dollar value of construction placed, averaging more than $225 million each year. While the FMS Construction Division is an integral part of Headquarters AFLC at Wright-Patterson AFB, Ohio, virtually all facilities which it provides in these programs are in other countries and are neither owned nor operated by the U.S. Air Force.

Much is written about the sale of actual weapons systems to foreign countries; however, little is said about the facility support which often accompanies the sale. While it is preferred that the individual country provide its own support, this is not always possible. Facility support ranges from the simplest of site surveys, with no Air Force follow-on facility support, to the complete design, construction, and equipping of facilities at multiple locations throughout a country. To date, facility support has included such countries as Sudan, Somalia, Tunisia, Morocco, Ecuador, Egypt, and Saudi Arabia. Current programs in some stage of programming, design, or construction amount to more than $2 billion.

The largest facility programs have been in Saudi Arabia, beginning with the F-5 program and its counterpart facilities, now greatly expanded with AFLC providing complete facilities to support 60 F-15 aircraft. With designs provided by architect-engineer (A-E) services under contract to AFLC, and with the U.S. Army Corps of Engineers (COE) serving as the construction agent, AFLC has managed a facility program consisting of more than 150 line items at five locations dispersed across Saudi Arabia. The cost of this program — including all design, construction, equipment, and total management services — amounts to more than $1 billion, all provided by the Saudi Arabian government. All of this has been done with a Program Management Assistance Services Contractor and only 20 Air Force military and civilian positions, of which 11 are assigned on-site in Saudi Arabia. The salaries and all travel and personnel support costs for these 20 positions are paid from program funds rather than by the U.S. taxpayer. The only cost incurred is the opportunity cost of not having the manpower positions available for other Air Force needs, since Congressionally imposed manpower limits do not exempt FMS positions.



In the near future, AFLC engineers will manage the total design and construction effort of another Saudi program. This program supports an improved command, communications, and control system and includes a construction effort estimated at several hundred million dollars. Some of the preliminary work has already been done, and in-the-field construction activities are expected to begin by mid-1984. The program consists of some 17 radar sites and five underground sector operations centers, as well as several other miscellaneous facilities, at approximately 25 locations, literally all over Saudi Arabia. This is the largest program for which Air Force engineers have ever been designated as design and construction agents, and the practical and technical challenges are enormous.

In Egypt, the second largest FMS facility program supports the F-4 aircraft, the establishment of a computerized integrated logistics system, and the equipping of the Egyptian Air Force (EAF) with F-16 aircraft at two bases. Unlike the Saudi program currently in progress, the EAF elected to do most of its own construction based upon AFLC designs provided through A-E services here. The COE has served as the design agent, as well as the purchasing agent for many of the electrical and mechanical systems components being installed during the construction process. Air Force RED HORSE engineering personnel from the 820th Civil Engineering Squadron, Heavy Repair, Nellis AFB, Nev., have done almost all of the construction involved with the establishment of the integrated logistics system at Basatin Supply Depot near Cairo. The Air Force engineer at the American Embassy Office of Military Cooperation in Cairo has contributed significantly to these programs since AFLC has had no on-site engineer during these programs.

Involvement in FMS facility effort presents several challenges which are quite unlike those which the typical Air Force Civil Engineer might expect to encounter. One would normally expect that most if not all contact that a major command might have with the Air Staff would be with the Directorate of Engineering and Services (AF/LEE). In working with FMS, the day-to-day relationship with AF/LEE is similar to that of a regional Civil Engineer activity. In addition, a

great deal of coordination occurs with the various FMS program management offices at the Air Staff. Funds and design management, approval of change orders and cost increases, and scope revisions are included in the many FMS Construction Division daily activities. The activities of this Division are highly visible in the international environment and, therefore, HQ USAF maintains a continuous involvement in the Division's programs to assure its actions comply with major engineer policy objectives.

Other challenges are provided by the myriad of different organizations involved with these programs. The International Logistics Center (ILC), another AFLC organization located at Wright-Patterson, is involved in every case. Since weapons system sales usually include some spare parts provisioning, the appropriate AFLC Air Logistics Center (ALC) contributes to the development of facility criteria. Dealing only with the programs of Saudi Arabia and Egypt, a partial list of involved participants includes various Air Staff offices, the ILC, three ALCs, three aircraft manufacturers, various Systems Program Offices (SPOs) of the Aeronautical Systems Division of the Air Force Systems Command (AFSC), and AFSC's Electronic Systems Division as it relates to nonaircraft programs. Considering the involvement of the American Embassy Offices of Training or Military Cooperation, the Air Forces of the specific countries involved, and differing degrees of participation by the COE, one can see that the overall mission of the FMS Construction Division is complex.

There are many other challenges. A significant one is difficulty in communications, either within a country or between the U.S. and a specific country. To illustrate, the normal 7-hour time difference between AFLC and its element in Saudi Arabia, combined with the Saturday-Wednesday work week associated with the Islamic calendar, limits voice contact between offices during normal duty hours to about 6 hours per week. Circuit congestion limits that time even further. From many of the other overseas locations of the FMS Construction Division, a telephone call "back to the office" is often an unachievable objective. Language differences contribute to communication difficulties, although not to the extent that one might expect, as English is used so universally. Other challenges include local practices attributable to religious or cultural tradition; local laws; varying degrees of technical expertise demonstrated by local contractors; local availability of materials; and security awareness differences shown by customer countries and the impact that causes in obtaining necessary visas, base passes, and travel authorization. One can easily imagine the kinds of difficulties these factors could create in carrying out a facility program; therefore, they will not be further expanded in this article.

How is all this related to providing "more for the money?" Several areas of potential cost come to mind. What if U.S. forces deploy to a region or country? Is the deployment to the mutual advantage of both the U.S. and a host nation? It may be, since one objective is ensuring the stability of the area or of the host country. What if the deployment is to protect vital U.S. interests, such as providing sufficient forces to adequately protect American citizens?

First, the U.S. would have to obtain basing rights in one or more countries. Many countries in the more disturbed parts of the world may offer basing rights to the U.S. if this offered increased stability and security to their own nation. Even those nations which otherwise could not accept the political burden of agreements which would allow basing of U.S. or other non-national forces within their boundaries might be expected to permit our forces to utilize their facilities under this circumstance — in short, friendly but not aligned. So we must consider that long-term basing might not even be possible in certain areas of the world. Even if this political hurdle can be overcome, base rights would possibly come in the form of some lease arrangement with a direct and significant cost attached.

Secondly, the expense of facility support for U.S. weapons systems would be the responsibility of the U.S., and the Military Construction Program would have to be expanded to support these needs. Design and construction costs would likely be significant, and could involve hundreds of millions of dollars for a single new installation.

Third, increases in manpower levels to support increased mission requirements would be necessary. Civil engineering and services personnel would be essential to any sustained mission capability. Undoubtedly, there would be substantial recurring costs for acquiring, training, and sustaining these forces. Finally, the maintenance of logistics supply lines would create added, long-term costs.

Several other considerations are appropriate. Security assistance sales provide significant numbers of private sector jobs that might not exist if total requirements were reduced. Linked to Congressional approval of many foreign military sales cases is the maintenance of an adequate U.S. production base, particularly in the case of aircraft. The United States must maintain the production capability for major weapons systems, such as aircraft, at levels sufficient to meet surge production requirements. Additionally, foreign sales contribute to the improvement of United States balance of payments to foreign countries. While all of these factors are certainly worth considering, too many variables are involved to attempt to quantify the importance of any of them.

An objective of the U.S. Security Assistance Program is to help recipient countries achieve self-sufficiency in providing for their defense and increasing their stability. This is critically important in many of the less developed regions of the world. Instability can lead to costly, sometimes chaotic upheavals which threaten entire regions, even the status of world peace. There is no price tag on the value of peace. But, we know that the cost of war is exhorbitant. We are working to help friendly and allied nations preserve their national integrity.

At Headquarters AFLC, engineers are making a substantial contribution to world order in a different way than any other engineering organization in the U.S. Air Force. Large facility programs with tailored management approaches, heavy travel requirements, diplomacy at high levels, demanding clients, harsh climates, and international visibility make up the challenges and rewards in this unique effort. In a very real sense they are getting "more for the money" in behalf of U.S. national interests.

Lt. Col. William D. O'Bar is Chief, Foreign Military Construction Division, Engineering and Services, Headquarters Air Force Logistics Command, Wright-Patterson AFB, Ohio. He earned his bachelor's degree in Industrial Engineering from Auburn University and his master's degree in Procurement and Contracting from The George Washington University. He is a member of the Society of American Military Engineers.

ESQworld

People, Places & Events of Interest

CORNELL PROMOTED TO BRIGADIER GENERAL

Brig. Gen. David M. Cornell, was promoted March 7 and on March 15 became the new DCS Engineering and Services for Headquarters Air Force Logistics Command, Wright-Patterson AFB, Ohio. He was DCS, Engineering and Services, Headquarters Military Airlift Command, Scott AFB, Ill., since November of 1981.

A native of Elsinore, Calif., Colonel Cornell is one of four sons who found careers in the Air Force. Don served as a pilot and Jerry a navigator and intelligence officer. Both are now retired lieutenant colonels. Gordon, a master sergeant, is now a professional military education instructor at Goodfellow AFB, Tex.

General Cornell received his associate of arts degree in pre-engineering in 1954 at Sierra College, Auburn, Calif., attended San Jose State University, and then enlisted in the Air Force in 1956. After basic training at Lackland AFB, Tex., he was assigned to the special weapons technical school at Lowry AFB, Colo. In 1959, he entered Officer Candidate School at Lackland AFB and was commissioned in December.

After serving as munitions officer at Lackland, he was chosen by the Air Force Institute of Technology to complete his degree program at Arizona State University, earning both the bachelor's and master's degrees in Civil Engineering in 1963 and 1964 respectively.

Following assignments at Sewart AFB, Tenn., Takhli Royal Thai AB, Thailand, and Sandia Base, N.M., he participated in the Education With Industry (EWI) program for a year with the architectural and engineering firm of Daniel, Mann, Johnson and Mendenhall, Los Angeles, Calif.

Following EWI, he was assigned to HQ USAF where he was an action officer and then executive officer for the Director of Civil Engineering. He then attended the Industrial College of the Armed Forces at Ft. Lesley J. McNair, Washington, D.C. Following graduation in 1976, he went to Osan AB, Korea as the base civil engineer. He served as base civil engineer and commander, 2nd Civil Engineering Sq., Barksdale AFB, La., following Korea, before transferring to HQ MAC.

He is a registered professional engineer in New Mexico, Illinois and Missouri.

Brig. Gen. David M. Cornell

BUILD/LEASE FOR HOUSING NEARS TEST

One Air Foce base has been selected for testing a new approach to base housing. Eielson AFB, Alaska, will get houses built by private developers operating under lease or rental agreements. Three additional bases are under consideration.

This type of housing is called for under the Military Housing sections of the Military Construction Authorization Act, Oct. 16, 1983. One section calls for U.S. build/lease housing. The other calls for U.S. rental guarantee housing.

The Defense Department has selected the Navy to write uniform invitations for bids for all of the armed forces. Target for the uniform bid was April. The first programs will be advertised in the **Commerce Business Daily.**

Under the build/lease program, the invitation for bids will state approximately what the government requires in terms of numbers of units and the number of rooms required for each unit, all built under government standards. Private architectural and engineering firms will be employed by the developers. Government engineers will evaluate the proposals. Offerings will be ranked by the highest value to the government. Leases will be signed with the successful bidders, not to exceed 20 years. The government reserves the right of first refusal to purchase the property at the end of the lease term. The government manages the occupancy.

Under the rental guarantee program, the developers build to government standards in return for an agreement not to exceed 15 years. There is no renewal option. Once in effect, the government furnishes a list of qualified applicants to the housing agent. The contractor must meet strict government standards to remain under the program. If applicants find that the housing meets their needs, they may choose to live in a unit shown to them by the firm responsible for managing the housing. All transactions are between the eligible military member and the private firm. Basic advantage of the program to the developer is a government guarantee of occupancy up to 97 percent. The intent of the program is not to force a member to take occupancy in such housing. Likewise, the basic intent is not to exclude the member from the option of buying or renting elsewhere using the basic housing allowance. The concept is to provide attractive housing within a reasonable distance of the military installation.

HABER FIRST TO RECEIVE AFIT MASTER OF ENGINEERING APPLICATIONS DEGREE

The first student graduated from the Air Force Institute of Technology's Master of Engineering Applications (MEA) degree program was William F. Haber, Roswell, Ga., the base civil engineer at Dobbins AFB, Ga.

He is also an Air Force reserve lieutenant colonel and commander of the 700th Tactical Airlift Squadron, Air Force Reserve, at Dobbins AFB.

Haber was awarded the degree last December in ceremonies at Wright-Patterson AFB, Ohio. A member of the original MEA cadre of students, he earned the degree through AFIT's School of Civil Engineering, gaining graduate credit for professional continuing education courses offered by the school. He earned additional graduate credit through Ohio State University, Columbus, and the Georgia Institute of Technology, Atlanta.

A 1969 graduate of the U.S. Air Force Academy, he also holds a master's degree in Management from Central Michigan University, earned in 1973 while on active duty with a Strategic Air Command refueling squadron at Rickenbacker AFB, Ohio.

Haber entered the organized reserve as a C-123 pilot when he took a civil service position in civil engineering at Rickenbacker. He moved to Dobbins in 1979 as a civilian, and also moved his reserve affiliation to the base.

The MEA program permitted him to take advantage of his graduate-level engineering work in Ohio and Georgia, while taking professional career enrichment courses at AFIT. He also completed a research thesis before earning the AFIT master's diploma.

In his thesis he plotted the cost of construction changes in contracted work. AFIT faculty members feel that Haber's method of analyzing cost variances in the construction efforts of a typical Air Force base will be useful as a management tool for other base civil engineers.

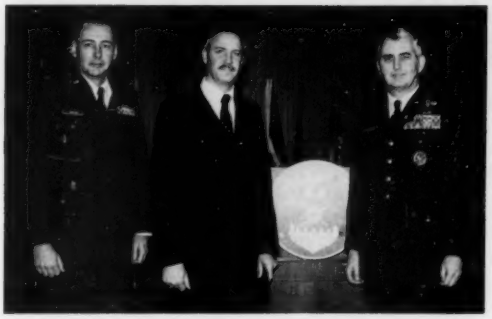
"The MEA program was super for me in my efforts to get a technical degree," he said, "particularly since the AFIT diploma is the best degree for me. The degree has applicability to my job. Every course that I took has usefulness to me in what I do for the Air Force. The problems and issues which I dealt with academically are specific to the Air Force, the Department of Defense and the nation."

Having a person complete the program has been a high priority at AFIT. The MEA program lost several degree prospects to local degree-granting institutions, some as a result of expediency to wrap up a program prior to a transfer or to meet a career deadline. Others were lost to the normal turbulence involved in people changing assignments.

Haber overcame a complex set of challenges. His civilian job is uniquely demanding. Dobbins has a complex mission, functioning as the host to the Lockheed-Georgia Co., headquarters of the 14th Air Force (AFRES), and Air National Guard reserve flying organizations, and a Navy reserve unit. In addition to being squadron commander of his reserve organization, he is also a rated C-130 pilot.

"When I fly airplanes on the weekend, it clears my mind," he smiles. The struggle to "find enough time" is always there, particularly when an essential course is offered at the AFIT main campus at Wright-Patterson AFB. He credits his base commander, Col. John Smith, and a "tremendous" base education office for making it possible to complete the required courses within the 5-year allocated time.

Developing a thesis by "long-distance" with the AFIT campus was another challenge, as were the high communications



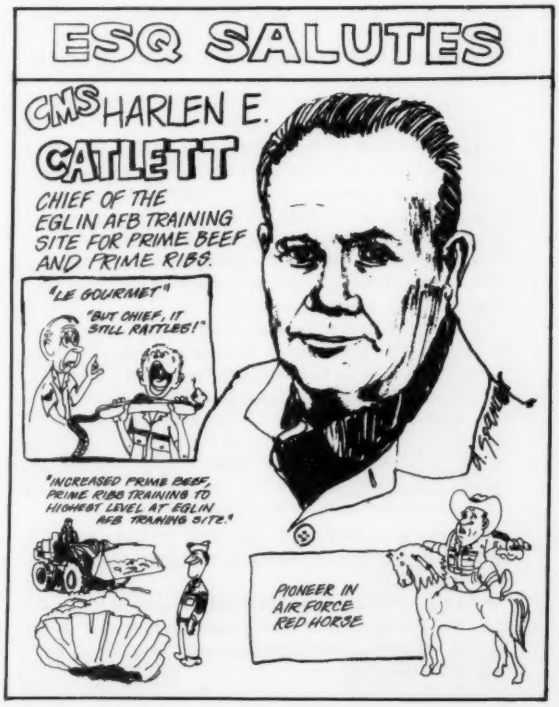
GRADUATION — Col. Phil Compton, Dean, School of Civil Engineering, left; Haber; Brig. Gen. James T. Callaghan, AFIT Commandant, right, at graduation ceremony.

demands brought on by a change in curriculum advisors.

Fortunately, Haber has a career pattern of successful home study, completing Squadron Officers School, Air Command and Staff College, and the National Security Management course at home by correspondence, some of which was done while enrolled in the MEA program.

There is little challenge, however, when it comes to gaining an understanding of engineering at home. His wife, the former Janice Bilecky, earned her Electrical Engineering degree at the University of Maryland and is now working on her master's degree in the same field at Georgia Tech. In the meantime, she is a professor at Southern Tech.

They have somehow managed to raise three boys, ages 13, 11 and 7 in a family of professionals. " We all seem to have a lot of homework to do," said Haber.


ESQ SALUTES
CMS HARLEN E. CATLETT
CHIEF OF THE EGLIN AFB TRAINING SITE FOR PRIME BEEF AND PRIME RIBS.
"LE GOURMET"
"BUT CHIEF, IT STILL RATTLES!"
"INCREASED PRIME BEEF, PRIME RIBS TRAINING TO HIGHEST LEVEL AT EGLIN AFB TRAINING SITE."
PIONEER IN AIR FORCE RED HORSE

HONORS GIVEN AT ENGINEERS' WEEK

By H. Perry Sullivan Jr., Editor

The best of Air Force civil engineering were honored in ceremonies at Bolling AFB, D.C., Feb. 24 as a part of the observance of National Engineers' Week.

Maj. Gen. Clifton D. Wright Jr., USAF Director, Engineering and Services, presented the awards. He was assisted in two of the presentations by Russell E. Dougherty (General, USAF, retired), Executive Director of the Air Force Association, and Robert H. Curtin (Maj. Gen., USAF, retired), former director of Air Force civil engineering. The awards were:

- **Newman Medal** — Col. Roy N. Goodwin, deputy chief of staff, Engineering and Services, Pacific Air Forces.
- **Minton Award** — James R. Millican, chief, Programs and Management Branch, Housing Division, HQ USAF, for best article in the **Air Force Engineering and Services Quarterly**, 1983. General Dougherty presented the award.
- **Military Meritorious Achievement Award** — Capt. Patrick A. Burns, 96th Civil Engineering Squadron, Dyess AFB, Tex. (Strategic Air Command).
- **Civilian Meritorious Achievement Award** — Stephen F. Dwight, formerly of the 2853rd CES, Robins AFB, Ga. (Air Force Logistics Command), now assigned to Bitburg AB, Germany.
- **Non-Commissioned Officer of the Year (Sgt.-TSgt.)** — TSgt. Marie B. Perlick, 86th CES, Ramstein AB, Germany (U.S. Air Forces in Europe).
- **Senior NCO of the Year (MSgt.-CMSgt.)** — SMSgt. Allen R. Jackson, 7002nd Civil Engineering Flight, Ramstein AB (USAFE).
- **Civilian Manager of the Year (to GS-11)** — Sandra B. Sergent, 91st CES, Minot AFB, N.D. (SAC).
- **Civilian Manager of the Year (above GS-11)** — Mathew J. Bazzani, 24th CES, Howard AFB, Panama (Tactical Air Command).
- **Goddard Award** — SMSgt Bob G. Buckles, 2852 CES, McClellan AFB, Calif. (AFLC).
- **Curtin Award** — 2849 CES, Hill AFB, Utah (AFLC). General Curtin made the presentation.
- **Bordner Awards** — Best heating plant, Category I, 509th CES, Pease AFB, N.H. (SAC); best Category II heating plant, 7350th Central Engineering Div., Templehof Airport, Germany (USAFE); Best Category I electrical generating plant, Det. 2, 2186 Communications Sq., Menorca, Spain (AF Communications Command); Best Category II electrical generating plant, 1010th Civil Engineering Squadron, Cheyenne Mt. Complex, Colo., (Space Command).
- **Federal Engineers of the Year** — Maj. Robert F. Olfenbuttel, Deputy Chief, Environics Division, AFESC, National Society of Professional Engineers (NSPE) Military Engineer of the Year; Floyd R. Ball, Deputy Base Civil Engineer, 96th CES, Dyess AFB, Tex., NSPE Civilian Engineer of the Year.

Newman Medal

Colonel Goodwin was cited for:

- Improving the readiness posture of PACAF;
- Increasing the Military Construction Program from $78 million to $128 million, providing for the beddown of five new weapon systems;
- Managing the combined MCP and non-appropriated fund program, operations and maintenance, and military family housing design and construction, valued collectively at more than $1.2 billion.
- He functions also as the Air Force Regional Civil Engineer for the Pacific.

He was officially awarded the medal at the annual convention of the Society of American Military engineers.

Minton Award

Mr. Millican was honored for authoring, "Housing Our People," the lead article in the winter issue of the **Quarterly**, focusing on the development of military housing policy, and current issues and programs. The award is sponsored by the AFA's Aerospace Education Foundation.

Military Meritorious Achievement Award

Captain Burns, chief of operations with the 96th CES, was cited for:

- Spearheading efforts to greatly improve weapons storage;
- Development and employment of the squadron Prime BEEF program;
- Solving problems caused by the degradation of pavements;
- Establishing controls over air conditioning and heating to conserve energy;
- Setting up a generator troubleshooting program;
- Influencing design review to gain facility maintainability;
- His efforts in productivity, quality, personnel development, long-range planning, priorities establishment in minor construction, and personal self-development.

Civilian Meritorious Achievement Award

Mr. Dwight was cited for his contributions as a member of the BCE management team, including:

- Management of the facilities contract program, O&M, MCP and programming;
- Spearheading a record $20 million of facility design-by-contract;
- Participation in the first major Robins AFB solar program;
- Continuing support of energy remedial design and conservation efforts;
- Leading basewide efforts to reduce hazardous waste volume, and provide better storage and handling;
- Participating in the archaeological identification survey; and
- Providing management assistance to the base wetlands and forestlands program;
- Helping Robins AFB earn the coveted Thomas D. White Air Force environmental award and runner-up honors in the DOD competition for improving environmental quality.

NCO of the Year (Sgt.-TSgt.)

TSgt. Perlick was honored for her work as the non-commissioned officer in charge of programming and scheduling. She:

- Demonstrated concern for production, people and customer satisfaction in coordinating repair and maintenance for more than 1,700 buildings, and nearly 3,500 family housing units at 42 separate Army and Air Force installations involving were more than 2,600 monthly work requirements, 18 different crafts, and daily involvement with numerous U.S. Department of Defense and NATO agencies;
- Enhanced the image of the customer service and production control areas;
- Instituted a customer relations program;
- Revised scheduling and control procedures for more than 150 vehicles;
- Inventoried and provided condition reports covering more than $6.3 million in household appliances and totally ended unaccountable losses;
- Revamped the recurring work program and applied engineering performance standards to work planning, increas-

ing completed work orders 35 percent per month.

She serves on the wing's exercise evaluation team. She holds a bachelor of science degree in Business Management and is working on her master's degree through the University of Southern California.

Senior NCO of the Year (MSgt.-CMSgt.)

MSgt. Jackson was honored for his leadership as a training manager at the Readiness Training Center at Ramstein AB, training more than 800 NATO civil engineering personnel in base recovery after attack. He:

- Pioneered numerous curriculum advancements to insure better wartime preparation;
- Helped develop alternative rapid runway repair methods;
- Taught RRR, explosive ordnance reconnaissance and minimum operating strip selection;
- Managed construction equipment and war readiness material training assets valued at more than $2 million;
- Pioneered the "assembly line" concept of assigning responsibility for an entire area of the runway to RRR crater repair crews, considered a significant breakthrough.

Civilian Manager of the Year to GS-11

Ms. Sergent's contributions at Minot included an errorless change to automated programming in the modernization of the material control section. She also improved the quality of maintenance and repair, reduced more than $200,000 in residue to less than $50,000, and made more efficient use of year-end funds.

Goddard Award

SMSgt. Buckles developed advanced computerized inspection schedules to increase productivity within the Engineering and Environmental Planning Branch at McClellan AFB. He:

- Monitored contracting-out of paint striping for the western U.S. at a savings of $440,000;
- Watched over more than $15 million in MCP;
- Provided vital services in attempting to solve long-range water contamination problems;
- Provided an advanced computer program to help manage quality assurance evaluations on all major service contracts.

Civilian Manager of the Year Above GS-11

Mr. Bazzani, deputy chief of operations, spearheaded bed-down of people on temporary duty in Central America, when large numbers of personnel began using Howard as a staging point. He greatly improved work force communications and cross-talk, contributing to a 100-percent utilization rate for 3080 funds. When productivity went down in a shop, he instituted positive work force control which caused an immediate 10 percent increase.

Curtin Award

In winning the Curtin Award for best CE organization of the year, the 2849th CES at Hill AFB was cited for:

- Conservation of resources;
- Improved management, sustained operational excellence;
- Community support;
- Professional attitude, dedication and sense of responsibility of all military and civilian members of the organization.

Col. Robert L. Allen, base civil engineer and commander of the 2849th CES, accepted the award.

Other achievements included the renewal and upgrade program, called Spruce Log; a "checkbook" system for minor construction work order requests, cutting work order backlogs 50 percent; the Hill AFB response to local floods last year, led by civil engineering; and earning "excellents" from the AFLC/IG team at squadron-level and for Prime BEEF training .

Bordner Awards

Four facilities were honored for the most efficient operations and maintenance of heating and power-generating facilities:

- Pease AFB, N.H. (3.5-14 million BTU per hour category) category)—Lloyd Manning, the mechanical superintendent, and Dave Ciardelli, the heating plant foreman, received the award for the 509th CES.
- Templehof Airport, Germany (more than 14 million BTU per hour category)—Maj. Norbert B. Krause, the Base Civil Engineer, and Peter Hoermann, Deputy Chief of the Operations Division, received the award.
- Det. 2, 2186th Communications Sq., Menorca, Spain (power generation category of 100-2,000 kilowatt capacity)—MSgt. Jose Ruiz-Rodreguez. received the award.
- The 1010th CES, Cheyenne Mountain, power generation capacity of more than 2,000 kilowatts—CMsgt. Ed Francischina, Electrical Manager, and Lt. Col. Ed Smith, Squadron Commander, received the award.

NSPE Engineers of the Year

The Air Force winners of NSPE awards were recognized at the society's awards dinner Feb. 23, and received added recognition at the Engineers' Week luncheon. Major Olfenbuttel was cited for his work in hazardous wastes technology, which has helped to revolutionize the industry and has been instrumental in attracting support of other federal agencies. His leadership in developing biological and chemical technologies is proving cost effective and will help remove the threat of dioxin-contaminated soil.

Mr. Ball managed a comprehensive energy savings project for Dyess AFB family housing, and was instrumental in spearheading base building renovations. He has received numerous awards for his.work in both the private and public sectors.

Capt. Burns, left.
Mr. Dwight, right

SMSgt. Buckles, left.
Ms. Sergent, right.

TSgt. Perlick, left.
Mr. Bazzani, right.

Maj. Olfenbuttel, left.
Mr. Ball, right.

SERVICES AWARDS PRESENTED AT WORLDWIDE

Ten awards, honoring the highest achievement in Air Force Services, were presented Dec. 1 during special ceremonies at the 1983 Worldwide Engineering and Services Conference at Homestead AFB, Fla. Maj. Gen. Clifton D. Wright, USAF Director, Engineering and Services, presented the awards.

The outstanding efforts of these individuals, General Wright noted, can be translated into improved mission support capabilities. Such individual competition provides the avenues and the motivation for continued improvements in Air Force Services programs, and brings the Air Force closer to those qualitative standards of facilities and services essential for supporting today's Air Force, he said.

Cited were:

- **Civilian Services Technician of the Year** — Bobby Holt, 3201st Air Base Group, Eglin AFB, Fla. (Air Force Systems Command)
- **Military Services Technician of the Year** — SSgt. Kenneth J. Broder, 4th Services Squadron, Seymour Johnson AFB, N.C. (Tactical Air Command)
- **Civilian Services Supervisor of the Year** — Mrs. Audrey L. Arno, 71st Air Base Group, Vance AFB, Okla. (Air Training Command)
- **Military Services Superintendent of the Year** —. SMSgt. James F. Downing, 51st Services Squadron, Osan AB, Korea (Pacific Air Forces)
- **Civilian Services Manager of the Year** — Yong Se Yi, 51st Services Squadron, Osan AB, Korea (PACAF)
- **Military Services Manager of the Year** — Capt. Gary C. Bradham, HQ USAFE/DEHS, Ramstein AB, Germany
- **Senior Civilian Services Manager of the Year** — Adolphus R. Wilson, 1st Services Squadron, Langley AFB, Va. (TAC)
- **Senior Military Services Manager of the Year** — Lt. Col. Kenneth R. (Ron) Stump, 31st Combat Support Group, Homestead AFB, Fla. (TAC)
- **Outstanding Services Unit of the Year** — Chanute AFB, Ill. (ATC).
- **Innkeeper Award** — 1st Services Squadron.

Mr. Holt

SSgt. Broder

SMSgt. Downing

Ms. Arno

Capt. Bradham

Lt. Col. Stump

Civilian Services Technician

As billeting reservations clerk at Eglin AFB, Mr. Holt's initiative and expertise were key contributors to the success of Eglin's test of a prototype automated billeting operation. He was credited with maintaining both new and old computer reservation systems for a period of 2 months while simultaneously converting manual reservation data into a useful form for the new computer system. His efforts were instrumental in meeting test objectives which resulted in an estimated annual savings of $95,000 and increased nonappropriated fund revenue of approximately $25,000.

Military Services Technician

SSgt. Broder, as Food Service Accountant at Seymour Johnson AFB, operated the microcomputer which is the nerve center of the Automated Food Service Operations System (AFSOS). The base was selected by HQ USAF and the Army's Natick Research and Development Center to test AFSOS. Recognized as an expert on the AFSOS, he was selected to develop software for the Services Information Management System (SIMS) at HQ AFESC.

Civilian Services Supervisor

As quality inspection specialist at Vance AFB, Okla., Mrs. Arno's efforts have produced an enviable record of consistently high-quality food and service to enlisted personnel at Vance dining facilities. She was responsible for food service technical guidance for several facility upgrades and service-improvement projects undertaken at Vance. She also masterminded a plan to combine dining hall and NCO Open Mess feeding functions which improved service to both dining hall and NCO Club patrons while providing annual savings of over $150,000.

Military Services Superintendent

SMSgt. Downing, as food service superintendent at Osan AB, encountered all the people and facility problems associated with short-tour locations, yet brought about many improvements to the base's dining facilities. The Osan facilities achieved runner-up honors in the PACAF Hennessy competition and received an outstanding rating during a HQ PACAF MEI (a first in PACAF).

Civilian Services Manager

As assistant billeting manager at Osan AB, Mr. Yi developed a program to upgrade 84 VOQs and 43 VAQs which included a $200,000 furniture buy. He was also responsible for upgrading the billeting lobby and front desk; developing a 5-year, $10 million furniture acquisition and replacement program for Osan and 18 geographically separated units; and managing the tent city operation at Osan during Team Spirit 83.

Military Services Manager

Captain Bradham, as chief of the Services Operations Branch, HQ USAFE, was responsible for Services wartime operational planning, the Prime RIBS program, Services manpower and personnel issues, and new mission beddown planning. He was the catalyst for Air Force Services support issues associated with USAFE and NATO mission changes in Europe and Southwest Asia. These included the beddown of SAC's TR-1 mission at RAF Alconbury; MAC's reallocation of missions and operating locations throughout Europe; Tactical Air Command and U.S. Central Command deployment missions in Southwest Asia; increased airlift in the European theater; and deployment of the ground-launched cruise missile in the U.K., Italy, Belgium, and other NATO nations.

Senior Civilian Services Manager

As billeting manager at Langley AFB, Mr. Wilson instituted changes in billeting procedures which produced significant improvements in customer service and availability of quarters; he used uncanny resourcefulness to obtain support for facility upgrade projects and trim personnel costs while simultaneously

improving services to the customer. The net result of his efforts was Langley's selection for the Innkeeper Award as the best billeting operation in the Air Force.

Senior Military Services Manager

Colonel Stump, as commander of the 31st Services Squadron at Homestead AFB, spearheaded numerous renovations of food service facilities; initiated major improvements in the billeting program; strengthened the mortuary affairs program; and used self-help projects to upgrade the furnishings warehouse and linen exchange facility.

Innkeeper Award

Langley AFB's outstanding overall achievements in bettering transient facilities earned them the coveted Innkeeper Award. They were cited for modernization, customer services, management, and dedication of the workforce leading to vastly improved quality for the thousands using the base facilities each year.

DESIGN ADVISORY COMMITTEE FACILITATES EXCELLENCE AND PROFESSIONALISM

One of the keys to future cohesiveness in the Air Force program to achieve design excellence is the Design Advisory Committee, established in February, 1982. Its charter is to provide the Director, Engineering and Services, HQ USAF, with expert advice on state-of-the-art advances in design, and to assist the directorate in enhancing the Air Force physical plant.

Six members comprise the committee, including a chairman, an executive secretary and four members. Each member is a design practitioner representing the disciplines of architecture, engineering, or urban and regional planning. Four members are Air Force Reserve officers who are involved in various sectors of the design-construction industry in their civilian professions. The two civilian participants are both Air Force design professionals.

Professional background is important to the mission of providing the directorate with unbiased expert professional advice based upon civilian experiences, and knowledge of government requirements.

Meetings are held quarterly. Each is considered an open forum. From the meetings come recommendations to the director, who has final disposition powers on all advice and recommendations.

Taskings to the committee come from the director, or the other functional elements of the Air Force. Most fall into the following categories:

- Design excellence
- Planning concepts for new buildings, building complexes, and rehabilitation projects and programs
- One-of-a-kind projects employing new design methods, materials, techniques and equipment
- Preservation of buildings and facilities that are part of the Air Force architectural and engineering heritage
- Design competitions
- Proposed legislation affecting the built environment
- Major design and construction projects and programs
- Existing and proposed design programs, policies and procedures which will enhance the ability to carry out the directorate's responsibilities
- Education and training of design professionals.

During the past year, the committee reviewed and made comments on a third party solar energy plant for the Air Force Academy, and reviewed the new Space Command headquarters facility. Additionally, the committee developed criteria for a new award to be presented to an individual with a proven and sustained commitment to design excellence.

Recently, the committee met to review and reflect on its first year, working to insure that existing momentum continues, and that the needs of the Air Force are being appropriately addressed.

The committee program for the coming year includes:

- Reviewing all major projects at locations throughout the Air Force which have an established high quality of architecture and engineering, such as the Air Force Academy and the Air University
- Researching, developing and recommending programs, policies and procedures for the professional development of civilians, active duty and reserve forces personnel
- Conducting reviews of programs such as architectural compatibility, planning assistance teams, etc., to insure that goals and objectives are met; and conducting design reviews of selected facilities such as major command headquarters
- Improving the process of acquiring facilities by examining individual components including - - but not limited to — architectural programming, post-occupancy evaluation, and computer-aided design
- Reviewing the LEE Strategic Plan and recommending programs, policies and procedures aimed at improving the quality of design leading to the year 2000 and beyond.

Any Air Force activity may request assistance from the committee by making a written request to the executive secretary, HQ USAF/LEEES. The request should explain in detail the particular problem or concern and the type of assistance requested. The design advisory committee is committed to improving the quality of the built environment and welcomes any comments and questions.

(William A. Brown Sr., HQ USAF/LEEES, Bolling AFB, D.C., and James R. Slager, HQ AFLC/DEE, Wright-Patterson AFB, Ohio.)

USAF Design Advisory Committee — Left to right: (first row) James R. Slager, architect, HQ AFLC, Wright-Patterson AFB, Ohio; Horace L. McLean (Col. USAFR, Ret.), former chairman, architect, Niles, Ohio; William A. Brown Sr., architect, HQ USAF/LEEES, Bolling AFB, D.C., executive secretary; Tom Lewis Jr., (Lt. Col. USAFR), architect, deputy to the Secretary, Florida Department of Transportation, Tallahassee; (second row) Larry L. Enyart (Maj. USAFR), architect, Phoenix, Ariz.; Jimmy Dishner (Col. USAFR), engineer-developer, Lebanon, N.J.; Gayland Witherspoon (Col., USAFR), professor of Architecture, Clemson University, Clemson, S.C., current chairman. (Colonel McLean retired after photo was taken.)

Brigadier General J.A. (Bud) Ahearn

by H. Perry Sullivan Jr.
Editor

Brig. Gen. Joseph A. (Bud) Ahearn is Deputy Chief of Staff, Engineering and Services, U.S. Air Forces in Europe. He was interviewed in December, 1983, at the USAF Engineering and Services conference, Homestead AFB, Fla. General Ahearn was interviewed previously in the summer, 1982, issue of the Quarterly when he was chief of the Program Division, Air Force Engineering and Services Directorate (HQ USAF/LEEP). The interview began with a question which focused on the unique dual role of overseas facilities where our personnel and their families work and live under constant awareness of the proximity of the Warsaw Pact nations.

ESQ: It has been almost a decade since one of your predecessors in Europe was directed to "harden" our facilities while improving the quality of life for our people. Are you still faced with this almost dichotomous challenge of allocating resources for hardened facilities on the one hand, and an enhanced quality of life on the other?

Gen. Ahearn: I would respond to that from a perspective of balance, rather than a perspective of dichotomy. It is easier to deal with when we recognize that we must balance the distribution of our resources towards programs that contribute most to building force structure, making our forces more ready and sustainable, and finally towards keeping our Air Force modern and in phase with the times. I hasten to say that there is an enormous amount of work to do in each of these areas. Survive-to-fight and quality of life projects contribute much to our readiness posture and we in USAFE have built our plans and programs to fulfill the potential of these kinds of investments. During the past decade we have seen NATO contribute more than 800 aircraft shelters and a substantial amount of hardened squadron operations, command post air covers and POL facilities. Since 1980, more than $400 million of new construction has been provided USAFE for dormitories, gyms, child care centers and other quality-of-life projects dedicated to improving our living and work places. USAFE's funded near-term Engineering and Services programs place even greater emphasis on this type of investment.

ESQ: At the 1981 convention of the Society of American Military Engineers in San Diego, Mr. Perry J. Fliakas, then serving in the office of the Secretary of Defense, said that a key problem facing our European forces was continued use of old horse stables for maintenance facilities, and old World War II barracks for dorms. More recently, we have heard of problems associated with using old operating surfaces with new aircraft. Has there been much to change that?

Gen. Ahearn: I think so. An increase in funding to remedy the modernization shortfalls has helped a great deal. We first have taken care of the festering sores that existed in our facilities inventory — sores that existed because of untimely funding

of maintenance, repair, and replacement projects. These high funding levels mean that we have been paying off an obligation caused by deferred maintenance and renewal programs in the past, which largely explains the increase. Because we have not had a systematic renewal program in the past we have been faced with the challenge of reaching a point where we can carry out an orderly program in which operations and maintenance are balanced against our needs for new construction and renewal programs. Our bases are in a much better condition now as a result of our growing capital repair program and growth in MCP investment since FY 1980, where the quality of life and work place upgrade investment rate are up by factors of 10 and 20 times. Looking at the dormitory program specifically, we plan to "buy out" completely our renovation and new construction requirements by FY 1990. We're now building new dorms in Europe at the rate of 1,400-2,000 bedspaces per year, which complement an ongoing $15-to-$20-million per year dorm renovation and alteration program.

ESQ: While we were recently doing research to focus attention on housing for our families and for our unaccompanied people, the words used by one official were, "a renaissance in housing in Europe." Have we truly moved that far forward in supporting our people in Europe?

Gen. Ahearn: I think we've gone that far toward recognizing the urgency of need to better care for our people. The Air Force has declared its first priority to be the attraction and retention of quality people. Modern quarters contribute greatly to the fulfillment of this priority, and improving the quality of our force drives up our readiness and efficiency dramatically. In Europe, we readily see such payoff at Incirlik, where the 850 new units of new family housing indeed earn the "renaissance" superlative. We have not experienced that quick a turnaround at our other USAFE bases, but we're making substantial headway. In the last three years our inventory of Air Force housing has increased 2,400 units or 14 percent, while 5,200 units have undergone major modernization. USAFE is still looking at a long-range family housing deficit of 17,000 units. Much remains to be done to truly earn the "renaissance" description for all of Europe.

ESQ: We apparently scored a major attitude victory with Incirlik. Do you think that we accomplished our purpose in making it a more attractive assignment?

Gen. Ahearn: Oh, indeed I do! I think Incirlik, Turkey, is testimony to the value of the Air Force's first priority. It's a tough leadership job out there. Incirlik is the easternmost outpost of USAFE. The living environment both on and off base was harsh. Providing a well-designed — a very well-designed — complete family housing project with a complementing core of community facilities should go a long way towards making the Air Force way of life at Incirlik much more attractive.

ESQ: While the political overtones of the ground-launched cruise deployment have been thoroughly covered in the world media, most seem to have overlooked the genuine engineering achievements in the beddowns. How do you feel about the progress to date in providing beddown facilities for GLCM?

Gen. Ahearn: Well, I think the progress is absolutely superior. While the media may not have given great coverage to the technical achievements of this $1 billion construction enterprise — the positive aspects of the engineering achievements may be well recognized elsewhere. The construction of the technical and community facilities for GLCM has had a great deal of international significance. The British Property Services Agency is the design and construction agent for the operational facilities, as well as for the support facilities in the United Kingdom. And believe me, they're doing quality work on time within the resources. We're proud of our Ally and their effectiveness there. The Italians, on the other hand, are doing equally well with their accelerated initial operational capability date. And, I find that same spirit working in all of the governments and their ministries of defense. That's not to say that we've not had our "stutter-stepping" in getting started. I am very, very proud of the Allied engineering efforts at delivering the ground-launched cruise missile construction program — very proud. Have we fulfilled all the requirements? No. One of our priorities at the outset was to have the necessary support facilities to permit accompanied tours. There were many reasons. One of the most important was productivity. People on remote tours spend a sizeable portion of their time getting settled and adjusted to a new assignment. They also have added concerns for their families back home. We have found that accompanied tours produce a far higher job satisfaction, better attitudes and greater productivity. We were not given those facilities essential to accommodate accompanied tours. There are many who feel that this is a major shortfall in support of our program. From both the business and human side of this enterprise, we are deeply disappointed that we were not given the resources for us to build the housing and the community facilities for our families. In the long term, this may ultimately reduce the effectiveness of our people.

ESQ: Denying the facilities necessary for accompanied tours has perpetuated — at least momentarily it seems — the idea that if you take a GLCM assignment you are going to go there unaccompanied.

Gen. Ahearn: That's true for all cases except Greenham Common.

ESQ: During our last interview, we described you as the "good shepherd" of the Engineering and Services requirements going into the POM and the budget. Now you are in an environment of unique funding processes with international implications. What are some of the key features of dealing with the Air Force and NATO funding proccesses in Europe?

Gen. Ahearn: Well, the key feature of dealing with any funding process is the clear definition of the requirement itself and a thought-out line of advocacy. The advocacy must emphasize what fulfilling the requirements will contribute to the warfighting capabilities of the U.S. Air Force and NATO. Programming new construction in Europe is done using NATO eligibility criteria as the pivotal policy. A project is eligible for NATO funding only if it directly supports an operational mission, that is, aircraft shelters, squadron operations facilities, command posts, and so forth. NATO infrastructure funding is based on an international cost-sharing agreement (the U.S. contributes 27 percent) and competition for these funds is by the U.S. and each NATO country. Once NATO funds are acquired for a project, the host nations do the designing. A team of NATO engineers does the design review and approval before funds are released to the host country for project advertising. Large projects are competitively bid internationally within NATO countries. In aggregate, the NATO process is more complex and time-consuming than the U.S. military construction process.

ESQ: First, someone has to decide if it is to be a NATO project. At what level is this done?

Gen. Ahearn: We in USAFE do that. We first determine if it meets the established criteria, and then begin to advocate its priority. Let me say that NATO has provided substantially toward our survivability needs in the past decade.

ESQ: I notice that our European Allies share

our concerns with rapid runway repair and with survivable base shelters and supporting facilities. Is there much interchange of information and technology within the European community?

Gen. Ahearn: We have an excellent technical exchange with our European allies. The Senior NATO Logistics Commanders (SNLCs) recently formed a working group for airfield damage repair (ADR), which includes RRR. Both Headquarters USAFE and the Air Force Engineering and Services Center have representatives on this group. Additionally, Headquarters Allied Air Forces Central Europe (AAFCE) recently held a regional conference on RRR. We are currently planning a bilateral field investigation with the Norwegian Air Force to explore potential problems of conducting RRR in arctic climates. For survivable shelters and facilities, the German Bundeswehr (Federal Army) has performed dynamic analyses and blast tests on some of our semihardened designs. The technical interchange with NATO and SHAPE ranges from general physical protection criteria to specific programs such as the weapons antipenetration project, to specific systems such as the new TR-1 tactical reconnaissance mission.

ESQ: Our Research and Development people at the Center have recently been involved in evaluating European technologies — particularly German — which appear to offer promise in hardening our bases and recovering from an attack. Is this a new trend?

Gen. Ahearn: I don't think so. Keeping a finger on the pulse of European technology for application to our needs is an ongoing effort. Validation blast tests have been conducted by the Air Force Weapons Lab (AFWL) on the Survivable Collective Protection System-I (SCPS-I) — formerly called the AMF-80 — which is a French-developed shelter. This shelter opened the door for the American-designed SCPS-II. AFESC is currently testing the standard NATO semihardened wall design. We are working on plans to test existing European precast modular concrete structural systems, specifically blast walls and revetments, which offer advantages in rapid construction and relocatability versus existing methods of protection.

ESQ: The Air Force Engineering and Services Center's Research and Development people conducted some research last summer over at North Field, S.C., involving the use of a German concrete slab for RRR. Was it very successful?

Gen. Ahearn: It was very interesting, and I think very effective, and drew a great deal of international attention.

ESQ: So, that modest test over at North Field had its international implications back in USAFE?

Gen. Ahearn: I think so. All the member nations of NATO are looking for better RRR techniques and more technical interchange. And believe me, there is an incredible multiplier effect, as you can appreciate when you have 15 member nations of NATO playing in the arena of airpower, and who are indeed threatened by a very formidable set of forces. If your sovereignty is threatened, you begin to look quickly and carefully at air base survivability and air base recovery. It continues to draw and earn a great deal of attention and will continue to do so until we find a technology to deal with the threat. We believe — and we have high hopes — that technology will take quantum jumps in the very near future.

ESQ: More than a year ago, the **Quarterly** carried an outstanding article on Collocated Operating Bases as a method of absorbing the wartime surge in Europe, at minimum outlay of peacetime resources. Has there been much progress in this direction?

Gen. Ahearn: Indeed there has. You well understand that the collocated operating base is perhaps our first priority. Our objective is to be able to survive to fight. To survive to fight best, we must disperse, and to do this we need minimum essential facilities for fuels, munitions and dispersal pavements. We have gotten started, using both MCP and NATO funds. In the advocacy of NATO funds, we've recently made much progress and anticipate $150 million in the next 2 years for these minimum essential facilities. We currently have seven of our 70 collocated operating bases equipped with these essentials and by 1990 our NATO and MCP plans are pointed toward completing all the minimum essential facilities and beginning the delivery of aircraft shelters to the collocated operating bases.

ESQ: That's remarkable. Of course, those COBs will absorb much of our active and reserve force structure from the United States. Many active and reserve organizations in the CONUS have deployment missions in Europe. A series of questions comes to mind. Does this put a premium on the training at Eglin? Do you feel that periodic training and deployments in the area for which USAFE is responsible are essential to wartime success? How do you feel about joint participation with our allies and those nations which have offered us the use of their facilities?

Gen. Ahearn: The broad-based contingency training provides a superb foundation upon which we build. Every Engineering and Services person reporting into USAFE undergoes specialized contingency operations training at our USAFE Training Center upon arrival. This training is directed at specific USAFE wartime requirements. Thereafter, annual Prime BEEF, Prime RIBS and rapid runway repair training permits us to exercise as we would work in war. We need to expand our exercise training to include more joint international exercises. We and our allies have been limited by a shortfall of funds. Nonetheless, we have actually pursued opportunities and will conduct a joint rapid runway repair exercise under arctic conditions. In 1983 we trained and jointly exercised with the Royal British Engineers. To date, joint training has been more of a technology transfer and technical data acquisition process. I encourage the continuation and expansion of this process.

ESQ: Particularly at the base level in the CONUS, the resources on hand are seldom enough to handle all of the many tasks associated with running an Air Force facility. There is a perception that Prime BEEF and Prime RIBS training and deployments detract from the ability to accomplish the day-to-day mission. How do you react to this?

Gen. Ahearn: Well, I would remind us of but one point. The only reason that we have uniformed military in civil engineering and services is to fulfill the wartime mission and that's what Prime BEEF and Prime RIBS training is all about — developing military skills.

ESQ: There have been concerns over the years regarding the potential for mass casualties in Europe. This brings our mortuary affairs policy into sharp focus, enabling us to see the importance of this mission. Have we come to terms with the full implications of the combat scenario in Europe?

Gen. Ahearn: I think so. The superb care we provided for the 241 dead from the Beirut, Lebanon, kamikaze bombing last October is sufficient evidence that we are capable of meeting the demands of mass casualty cases. The Air Force was tasked to be EUCOM's executive agent for mortuary affairs, and our Engineering and Services team was assigned the overall responsibility. It was a concerted team effort, involving the medics, the airlifters, and our Services people — both the mortuary affairs people, and the billeting and food service people. Our Services people were in the lead. It also included our civil engineers, security, communications, the airlift support teams and the crews, the people of the Army and the Navy, the Justice Department, hundreds of volunteers at Rhein-Main — people wanting to do their best in tragic circumstances — working together as a team. The Air Force,

leading an American response effort on foreign soil, hastened the return of our nation's dead to those who loved them most. We did learn from this tragedy that we need a vastly improved identification and morgue facility for mass casualty challenges of this size. Action is underway now to gain the needed improvements, so that we can improve our responsiveness.

ESQ: Are you talking equally of the technology, the supplies and the people?
Gen. Ahearn: We have most of the people we need, already in Europe. I am talking specifically about a facility with greater flexibility and capacity, with all of the necessary kits and supply items already on hand. This would greatly ease the marshalling and shorten the time required to return the dead to their homeland and their families.

ESQ: Europe was the prototype for the combined Engineering and Services in the Air Force. How do you feel about the effectiveness of the E&S combined mission at this juncture?
Gen. Ahearn: Well, I feel better about it every day. As I said before I see that some of my highest priorities — if not my highest priorities — deal with Services issues. Food service, transient quarters and dormitory management require my daily attention. And, I don't believe that we could have fulfulled the requirement of services to our people nearly as efficiently and effectively without such a marriage.

ESQ: Food service in Europe seems to be a particular challenge, with many management decisions on sources, the proper mix of uniformed and civilian personnel in the dining halls, and the challenge of maintaining excellence in a host-country environment. Yet, Europe does well in the annual Hennessy competition. What are the keys to success?
Gen. Ahearn: Hard work, care for the people you serve, and the support of the commander — mix those ingredients together and you'll get a pretty fine product. An **a la carte** system usually gives the best service and the best food quality for the dollars, and a comprehensively designed facility helps in competition. Landscape design, a welcoming foyer, smartly decorated interior design, and an up-to-date, attractive serving line contribute much to the quality of the dining hall. Notwithstanding the facility and the system, nothing — absolutely nothing — is a substitute for attractively presented, good food.

ESQ: What about your efforts to improve dining facilities in Europe?
Gen. Ahearn: We're gaining momentum — a lot of momentum. Improving dining facilities is among my first priorities — if not my first priority. We are applying the leverage of Engineering and Services and we are delivering comprehensive designs. We think we've got something going.

ESQ: There is a unique interdependency between the Exchange and the Commissary people and our ability to function as a fighting force in Europe. What have been your observations on this mission relationship since assuming your assignment in Europe?

Gen. Ahearn: In a high state of readiness, the Commissary people are responsible for providing rations for all of our forces. As a matter of illustration, they are responsible for setting up troop issue points at any base having more than 1,250 personnel. The Exchange people will continue to function, and ultimately will carry their activities to the forces, wherever they are deployed. The missions change. They do not cease to exist. The importance of each increases. In peacetime the Exchange and Commissary Services contribute enormously toward attracting and retaining a quality force. The leaders of both the Exchange Service and the Commissary Service recognize that the European theatre needs many new or upgraded stores to realize the full potential of their services. We anticipate better service and higher profits from new stores. The higher profits mean more dividends from the Exchange Service for morale, welfare and recreation activities. In 1983, AAFES sales in Europe amounted to $787 million. Of that, $4.2 million was generated for USAFE MWR programs. In 1983, AFCOMS sales amounted to $1.2 billion. Their sales have generated resources from the 5 percent surcharge to finance $179 million worth of new stores in USAFE. We need 19 new stores, five have been completed and the remainder will be complete in FY 1988. I don't know if we can really measure the impact of exchanges and commissaries on combat capabilities. But, I do know that the well-being of our people is greatly enhanced by the quality services that exchanges and commissaries provide. I believe that there is a strong linkage between quality service, well-being, quality force retention and combat capabilities.

ESQ: How would you summarize the overall effect of the total Engineering and Services effort on the ability of the forces in USAFE to carry out their assigned mission?
Gen. Ahearn: We make it possible to attract and retain a quality force. We respond to the needs of our people, and that is critical if we are to communicate that we are all members of the same team, the same family. We make it possible for our operating forces and those forces which support operations to do their jobs well, in facilities which are properly designed, on air bases which are becoming far more operationally efficient. Our forces have always been here to deter war. Should war ever appear likely or happen, we are prepared to carry out our role in providing the launch and recovery platforms necessary to sustain operations, while at the same time answering the essential needs of our people. We are here as the invited partner in defense of those nations in which we serve. We work closely with our Allies in NATO, and that cooperation has a new vitality. In the world just beyond the borders of the NATO nations are unique challenges. There is always the threat of disorder; we are always faced with the potential for crisis. The people of Engineering and Services are integral to the U.S. Air Forces in Europe, and we provide a professional resource capable of establishing and sustaining an operational facility beneath our forces almost anywhere.

Profile:
Born — Sept. 5, 1936, Galesburg, Ill.
High School: Saint Louis University H.S., 1954.
College: Bachelor of science, Civil Engineering, University of Notre Dame, 1958 (commissioned through AFROTC); master's, Engineering Administration, Syracuse (N.Y.) University, 1967.
PME: Industrial College of the Armed Forces, Ft. Leslie J. McNair, Washington, D.C., 1979.
Other assignments: Vandenberg AFB, Calif.; Goose AB, Laborador; HQ 8th AF, Westover AFB, Mass.; HQ European Security Region, Frankfurt, Germany; Deputy Commander then Commander, 554th CESHR, Cam Ranh Bay AB, Vietnam; BCE, Craig AFB, Ala.; IG staff, ATC, Randolph AFB, Tex.; Air Staff action officer, then, Chief of Housing Division (AF/LEEH), and Chief, Programs Division, (AF/LEEP).

ALCM Beddown: More Construction for the Money Through Cooperation

by Col. William R. Andrews Jr.
with Bob Hipschman

The equation adding up to true success is often complex.

When the security and future standing of an entire nation hang in the balance, a new ingredient — pressure — can only heighten that complexity.

That is why the Air-Launched Cruise Missile (ALCM) support facility design and construction program may be deemed an astounding success — and a measuring stick for future efforts.

The ALCM is a vital strategic weapon system carried by B-52 aircraft. It is a relatively small, long-range, air-to-ground, subsonic missile that is highly maneuverable and capable of accurately delivering a nuclear warhead to a target by means of a self-contained guidance system. In the present configuration, 12 ALCM missiles are loaded externally on an aircraft. Both short-range attack missiles (SRAMs) and gravity bombs may be loaded internally. With modifications, ALCMs may be loaded internally in the B-52s and may also be loaded aboard the B-1B. In the meantime, cruise missile technology is not standing still. Redesign may include "stealth" technology leading to an advanced cruise missile.

Design and Construction

Weapons system developers at the joint cruise missile system program office narrowed the competition for the air-launched missile to configurations proposed by Boeing and General Dynamics. Thus, the Air Force was faced with either of two potential winners of the competition. A decision was made to deploy the missile, but this was before the final competition between the two Air-Launched Cruise Missile proposals was complete. When authorization was given to Strategic Air Command's Air Force Regional Civil Engineers office in January of 1979 to initiate design of ALCM facilities, the competitive outcome of the fly-offs was still not known. Compounding the challenge was the high priority given to the project by the Department of Defense. This caused the program to be tightly compressed, requiring the immediate initiation of conceptual engineering design in order for the Air Force to maintain the program schedule.

In February, 1979, the Air Force first briefed the Missouri River Division and the Omaha District of the Army Corps of Engineers on the ALCM facility support program. (The Army Corps of Engineers is the design and construction agent for the Air Force.) To work with the SAC-AFRCE project officers, and the project officer designated by the Air Force Systems Command's Aeronautical Systems Division (ASD), the Omaha District activated a Special Projects Office in March of 1979. A month later design was initiated on $20 million in essential facilities for the first ALCM base, the model for the ensuing seven beddowns. Final conceptual design deadline was but 8 months away — September. Add another challenge — the first beddown base would not be known until August. So, two designs were concurrently developed, one for Griffiss AFB, N.Y., and the other for Wurtsmith AFB, Mich. Differences in layout and structures at the two bases posed obstacles for the designers and brought in an added group of people with whom communication and coordination were critical.

Criteria were provided to the Omaha District of the Corps of Engineers by AFRCE-SAC, ASD and the prime competing missile contractors. This greatly enhanced communications. But, the challenges placed before the design community were given a unique added importance. Rather than repeat the same construction design effort in each affected Corps of Engineers district, it was decided that one office — Omaha — would constitute the central design team. The communications, coordination and centralization of effort paid off. When Griffiss AFB was chosen as the first ALCM base and Boeing was awarded the cruise missile production contract, much of the design foundation work was complete. The Omaha District completed the design in December, 1979, turned it over in January of 1980, and the construction contract was awarded in May. Construction of the support facilities was completed in September, 1981, and the initial operational capability (IOC) was achieved on schedule in December, 1982. This was done at a lower-than-expected cost. Benefits extended to the ensuing projects. In addition to Wurtsmith AFB, Grand Forks was chosen as an ALCM base, and construction has been completed on schedule at both sites. Five other SAC bases now have ongoing ALCM projects and several additional bases are being considered.

Project Scope

To comprehend the significance of the undercost, on-schedule completion of the project, it is necessary to consider the typical ALCM site plan. Included are:

- **Unarmed Weapons Storage Facility (UWSF)** — Immediately upon arrival at the base, crated missiles are unpacked and stored in this 9,000-square foot, steel frame, metal-panel facility. It houses up to 60 uncrated missiles.
- **Integrated Maintenance Facility (IMF)** — Costing approximately $4 million, this 32,000-square foot building houses a major portion of nonflight operations and

maintenance, including replacing engines, mounting missiles on pylons, fueling and defueling, and electrical testing and checkout.

• **Storage Igloos** 40 by 120 feet inside, house the missiles, following mounting on pylons.

• **Mission Data Processing System (MDPS)** – Data processing of classified intelligence and target information is done in a booth, shielded from radio frequencies and located in a concrete vault.

• **Security Improvements** – Staffed around the clock to ensure security, a key design feature is the inclusion of sally ports for thorough inspection of personnel and vehicles entering the base. Buildings include a Reserve Fire Team Facility, Entrance Control Facility, and Master Surveillance Control Facility Tower. Other improvements include electronic security sensors and cameras and an 8-foot high chain-link fence, topped off with barbed wire.

Security During Construction

Maintaining adequate security during the construction stage was a critical feature of design. With the weapons storage area operational, it was necessary to establish a contractor's work area with fencing and sensors. In many cases the only separation between the contractor and the armed security police was but a few feet of ground and a chain-link fence. Both the Northern and Southern areas of the Air Force Communications Command provided manpower and materials for sensoring. Ultimately, both the contractors and the Air Force benefitted from establishing well-defined work areas for each as it minimized disruption. Fences were sequentially moved during construction so some of the new buildings could be used for delivery and checkout of missile hardware even before the construction project was completed.

UNARMED WEAPONS STORAGE facility can house up to 60 uncrated missiles.

Security as a Design Criterion

Security was also a paramount consideration in design and construction of the facilities. The IMF wall perimeter is designed and constructed of reinforced concrete, according to strict specifications – a minimum 9 inches of concrete, reinforced with two layers of number 4 steel bars, set 9 inches apart in each direction, staggered so that no opening exceeded 4 ½ inches. The lone entrance is made of sturdy steel, with a double set of security locks.

A great deal of coordination was required among those designing the IMF to meet the complex requirements for structural, electrical, environmental, fire safety, water supply and dealing with liquid waste.

One particular challenge was satisfying both the fire code and the explosive distance requirements for exit doors. Because of the possibility of accidental fuel vapor explosions during maintenance and checkout procedures, the administration area of the building is designed as a protective blast shelter for those not actively working on the missiles.

Heating, ventilating and air-conditioning systems were designed to meet different temperature, humidity and filtration requirements in various rooms of the IMF. It was also necessary to provide a differential in room pressures to prevent hazardous vapors from fuels or paints from harming personnel or computerized test equipment. Positive air pressure in the areas being protected prevents vapors from migrating from adjacent, lower-pressure areas toward people or equipment. Between two of the working rooms there is a requirement for double-leaf steel doors, measuring 15 feet wide by 16 feet and 6 inches in height. A form-fitting rubber door seal was designed to accommodate the passage through the door of an overhead monorail system. It was also necessary to design new hardware to allow personnel to manually open, close and lock the doors.

Monorail System

The monorail system that interconnects maintenance and test areas throughout the building includes manual trolleys for use in hazardous areas, and three-speed electrical trolleys in all other rooms. Used to transport the missile within the building, it is designed to meet nuclear certification criteria.

Compressed Air

Two types of compressed air are required in the IMF. One requirement is for clean, dry air used to cool test equipment. A separate source of lesser quality air was required for normal shop tool type equipment. A single system now meets both requirements, using two compressors to meet both needs, but without the added cost of two different installations.

Plumbing

In addition to the sanitary waste draining system, the IMF includes another for channeling spilled fuels and fire fighting chemicals to a storage lagoon for disposal.

Fueling and defueling missiles required installation of fiberglass or stainless steel storage tanks and fuel distribution and heating equipment. Additionally, stainless high-pressure piping is installed between a hydraulic pumping room and the test frames in the high bay of the building.

Fire Detection

The fire detection system remotely relays signals to the Base Fire Station. Additionally, there are three built-in fire protection systems. A water sprinkler system protects the administrative area, while aqueous film-forming foam (AFFF) protects certain high-technology assets in maintenance areas. Adequate water pressure is ensured by a pumphouse and a 300,000-gallon capacity water storage tank. Halon gas is used to protect electronic test equipment.

Electrical

Like most Air Force aircraft maintenance facilities, there is the dual requirement for standard voltages and currents used by most ground support equipment and for lights and common tools. A source of 400-Hertz, 28-volt power is required to duplicate the on-board aircraft/missile power.

Igloos

Thought to be the largest concrete oval-arch storage igloos in the world, each will shelter up to four complete sets of pylons, each pylon mounting six missiles, seated on loader adapters. Heavily reinforced concrete is used, 36 inches wide at the base, 24 inches thick at the springline some 13 feet above the floor, 10 inches thick at the crown and 18 ½ feet high.

Each of the four 8-ton blast doors in the igloo is 18 feet wide, and 13 feet high, made of 8-inch steel beams welded to 5/8-inch steel exterior plate and 3/8-inch interior plate.

Igloos are spaced 40 feet apart with compacted soil filling the space between the igloos, placed to a depth of about 3 feet over the arch's crown. If there is an explosion within a neighboring igloo, the soil provides an added measure of security and inhibits the normal tendency of the arch base to kick out when there is an internal explosion.

Special Trailer

A special electrically powered, tricycle-wheeled munitions lift trailer with four-direction mobility is used to transport either pylons or rotary launchers. This permits precise placement of pylons on the wings of

aircraft being loaded and also permits rotary launchers to be placed beneath the belly of the aircraft for internal loading. Design features include tire pressures up to 350 pounds per square inch, a weight of 85,000 pounds, and a length of 62 feet, including the towing tractor. Facility design had to consider the unique requirements of the trailer including special pavement design. Estimates of trailer weight and physical dimensions continually changed, another challenge faced by the design team.

A Unique Approach

At the outset, it was obvious that the weapons systems development team would necessarily be the primary resource for information and design input details relating to the concepts to be employed for missile maintenance, storage and operations. Thus, the positive relationship with ASD was critical to mission success. Through the ASD representative for facilities design, it was possible to gain valuable information from both of the competing contractors, and then from the eventual winner.

This type of missile is not new to SAC. B-52s were previously configured to carry both the supersonic Hound Dog missile and the subsonic Quail decoy. Recently, SAC underwent the beddown experience with the SRAM and with the support required by the upgraded B-52 offensive avionics system, each involving facilities considerations and providing invaluable experience. It should also be understood that the ALCM is superimposed upon the other facilities at the affected bases. However, new to the ALCM concept was the preloaded pylon feature, utilizing the massive missile handling trailer. Similarly, the integrated maintenance facility required features typical of many other electronics shops, but with unique essential features requiring much effort and time to properly deal with design.

By taking the total design effort to the Corps' Omaha District, it was possible to achieve a highly beneficial communications link between the developers, the AFRCE, the designers, the bases affected, and the contracting community. Thus, it was possible to define the requirements in an environment of dialogue, open to alternatives, and narrowing the essential design effort to agreed-upon facility features. It was a method to bring SAC's full experience into the process, making this relevant to the needs of the ALCM from the developer's view, and in terms totally appropriate to the designer's efforts.

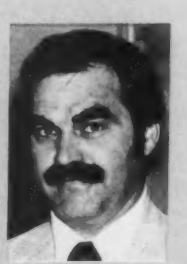
Because the first effort was, in fact, an operating prototype, similar in many regards to weapons system development, it was possible to deal with the adjustments necessary for the operational forces to gain the maximum benefit from their new facilities, while capturing the engineering and design remedies in follow-on efforts. In fact, remedial projects were in progress for nearly completed facilities as the design features for later ALCM beddowns were being adjusted to reflect the needed changes. We had achieved configuration control of the facility design effort.

These were the unique benefits to having a centralized team responsible for the beddown projects at each of the bases involved. Problem areas were still being identified during postconstruction inspections and when operational activities began. Because of the close communications existing within the design community, most of the early-on problems were corrected prior to the design completion of the later projects. This same single-point AFRCE/Corps Omaha District concept is also greatly responsible for the low design costs. Instead of the normal 6 percent of the $300 million estimated construction cost, design costs were held to approximately one-half that amount. While the favorable bidding environment was significant in the 30 percent overall savings being achieved thus far, another factor was the confidence of the contractor community in the detailed effort invested by the design team and in the resulting closely scrutinized designs, scaled for economy and quality. Experience gained during initial construction contracts could be parlayed into reasonable construction costs.

Summary

It has taken extraordinary effort by Air Force, Army Corps of Engineers and construction contractor personnel to design and construct the facilities on-schedule, with high quality, and at significant savings. At the outset it may have seemed an impossible task, considering the compressed time schedules, numerous coordination problems and uncertainties. But, superior cooperation and teamwork between the Air Force and the Army Corps of Engineers at the beginning created a dynamic atmosphere of meeting challenges with creativity, professionalism and dedication. The result was bringing on one of our nation's strongest elements in the arsenal of deterring future war in a way to inspire pride among all those who were part of this unique project. Of major significance was the cooperation between the Air Force and the Army Corps of Engineers while accomplishing those engineering and construction tasks necessary for bolstering this country's security. This relationship has been, and, we feel will continue to be, one of cooperation, mutual respect and unselfishness — a real team effort.

Col. William R. Andrews Jr. has been commander of the Omaha District, U.S. Army Corps of Engineers since graduation in June 1982 from the National War College, Fort Leslie J. McNair. His previous assignments include Operations Research Systems Analyst in the office of the Chief of Staff, U.S. Army and numerous key assignments in the U.S., including a tour with the Defense Logistics Agency. He also has served in Thailand, Vietnam, Korea and the Dominican Republic overseas. A graduate of Texas A&M University with a bachelor of science degree, he also holds masters degrees from Rensselaer Polytechnic Institute and Sul Ross State University. He is a Ranger and has an extensive background as an airborne engineer.



Bob Hipschman is assigned to the Air Force Regional Civil Engineer office responsible for the unique requirements of the Strategic Air Command. Among his responsibilities are the Air-Launched Cruise Missile Program, the Short-Range Attack Missile and Offensive Avionics System improvement programs, and the B-1B. He has served in Japan, Korea and in Michigan with Air Force civil engineering. A graduate of South Dakota State Unversity, he holds both the baccalaureate and masters degrees there in Civil Engineering. He is a registered professional engineer and a member of the American Society of Civil Engineers and the Society of American Military Engineers.

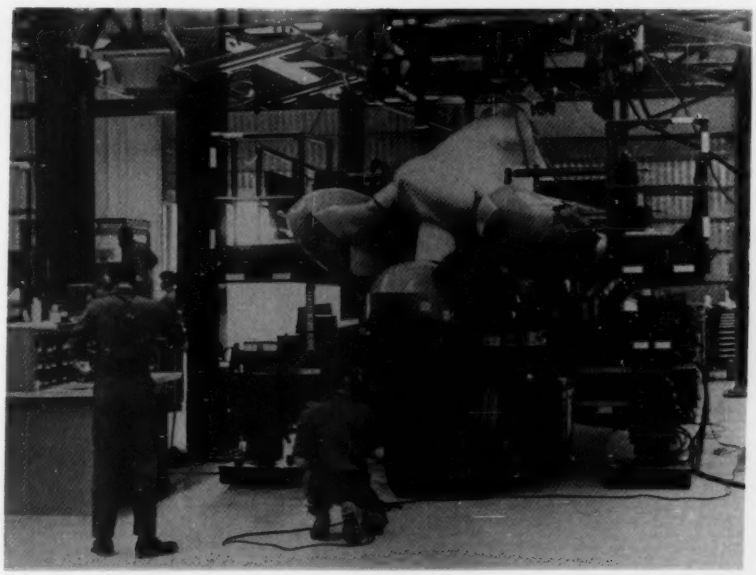
The fact that the initial facilities were brought in on-schedule is definitely the highlight of the project. Cost overruns are always a concern and I don't think we get enough credit for those cases where we do things in an economical way.... We had to develop the facilities and build them at the same time we were trying to build a weapon system. That couldn't possibly have been done without the cooperative efforts of the entire ALCM team, including the Corps' Special Projects Office, SAC engineering people and the weapons system contractors. Lt. Gen. George D. Miller, Vice Commander-in-Chief, Strategic Air Command.

I am very happy with the facilities here. From a historical perspective, we really ran pretty quickly with this ALCM project. It took a considerable amount of cooperation and we're in on time. Although there are some refinements to make, I think we are progressing well. What this project represents is significant, not particularly to the Air Force or the Army, but to the nation itself. ...The fact that it adds greatly to our strategic deterrent is the highlight of the program. Brig. Gen. William M. Constantine, former commander, 40th Air Division, Wurtsmith AFB, now Deputy Director, International Negotiations, Office of the Joint Chiefs of Staff (J-5), Washington.

Project Warrior Note: AIR-BREATHING MISSILES

During the dark World War II days when Britain was being bombarded daily, in addition to the threat of manned bombers there were the deadly missiles. One was a ballistic missile, ironically, based in large part upon the pioneer work of Robert Goddard, an American scientist who worked in relative obscurity after an unfortunate incident with the media. The New York newspapers attributed outlandish conjectural stories and cartoons of earth visitors to the moon and Mars to Goddard's ideas. Embarrassed, he retreated from public life, sponsored in his rocketry research by millionaire Daniel Guggenheim. The German scientific and intelligence community discovered his patents, and purchased them for a pittance, eventually hoping to develop a nuclear ballistic missile. Instead they developed a fairly accurate, liquid-fueled, conventionally armed rocket, against which there was no defense at the time. Today, this technology base is the foundation upon which the space programs of the U.S. and most of the world are built. Another of the World War II missiles with a significant impact was the tiny winged "buzz bomb," used both as a ground-launched and air-launched missile which was propelled by a diminutive, air-breathing jet engine, the first to be used in combat. This technology base includes the Bomarc, Mace, Regulus, Hound Dog and the Quail, and the family of target drones, and provides the concept of the cruise missile. Development of a cruise missile included three variants, the air-launched configuration constituting but one of them. Others included the sea-launched and ground-launched versions. Because of the complexities, a single interservice systems program office was established to handle the development effort. Among the keys to successful weapons systems beddowns is knowing the complete technical requirements of the system, and the bases upon which the system will be embedded. Because of a provision for a fly-off competition between competing configurations, this was not known until the last minute. Further, the bases were not chosen until late in the program cycle. In the meantime, the national defense strategy was altered to rely upon the reconfiguration of the B-52 as a carrier of the ALCM, while delaying the further development of the B-1A. Thus, the missile was critical to maintaining the balance of power necessary to ensure a viable deterrent force. This article deals with the beddown of the ALCM facilities, a cooperative effort involving the Air Force Systems Command's Aeronautical Systems Division at Wright-Patterson AFB, Ohio, the Strategic Air Command's Deputy Chief of Staff, Engineering and Services, the Army Corps of Engineers Omaha District, and the architectural, engineering and construction firms which brought the facilities on line on time and under budget.

CREWS inside the IMF perform a major portion of nonflight operations and maintenance, such as electrical testing and checkout of the missile.



The Ground-launched Cruise Missile in Europe: AN INTERNATIONAL CHALLENGE

by Maj. Jack T. Baker

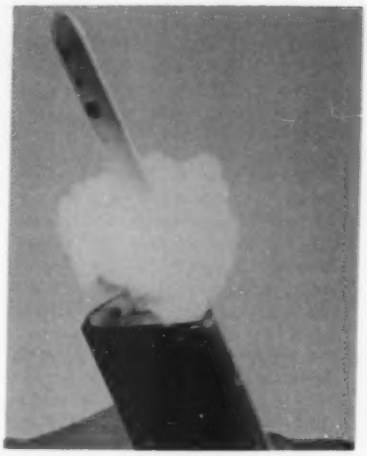
The more than $1 billion construction effort required to beddown the ground-launched cruise missile (GLCM) in Europe is one of the most important programs ever undertaken by the U.S. Air Force and NATO. From major facility modifications and new construction at RAF Greenham Common to the construction of a complete base at Comiso, Sicily, the challenges and opportunities are tremendous. Considering such factors as the construction of hardened shelters that have never been built before, special host nation and NATO requirements, shortened time lines, political constraints, as well as any number of other "minor" issues that have to be solved along the way, the engineering effort becomes even more significant.

The first base that will become operational is RAF Greenham Common in the United Kingdom. Greenham, a standby base that supported several hundred people in the past, is now being transformed into a base that will support more than 2,000 active duty personnel. A $45 million military construction program effort is involved in modifying dormitories, administrative support facilities and warehouses; and building new facilities such as the gymnasium and base civil engineering shops. While the MCP effort is massive, the real story at Greenham Common is the construction of the GLCM alert and maintenance area (GAMA) and the other operational facilities such as the wing headquarters/command post, hardened shelters that will house the transporter-erector-launchers (TELs) and launch control centers (LCCs) which will provide a quick-reaction alert complex. Each shelter contains 20,000 tons of concrete, nearly 1,000 miles of reinforcing rods, six 80-ton doors, and a lot of engineering blood, sweat and tears. The completion of the shelters probably overshadows the construction of the other GLCM-unique facilities — facilities that all required innovative solutions to tough engineering problems. As one looks at the GAMA construction site, an empty field in November of 1981, the magnitude of the construction effort becomes apparent.

The beddown at Comiso, a completely different story, generated a whole new set of challenges. As noted in the summer, 1983, issue of the **Quarterly**, the Air Force is transforming an abandoned Italian World War II base into the home of the 487th Tactical Missile Wing. The first permanently assigned individuals, members of the 487th Combat Support Group, arrived May 5, 1983, and were housed in a porta-cabin village as permanent construction continued all over the base.

Five major construction efforts are involved:

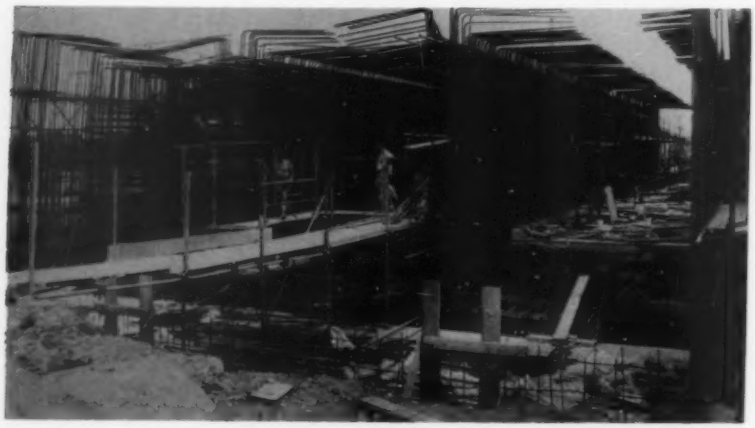
- Interim base operating support facilities project (porta-cabins)
- NATO-funded interim operations and storage area
- FY 82 MCP — force beddown
- FY 83-85 MCP — troop support
- Permanent NATO facilities.



The interim support facilities construction effort is a story within itself. The porta-cabin facility currently houses more than 100 people, also providing dining, maintenance and administrative space for the more than 400 people that are on site. The facility offers the first increment of water and sewage systems, and one of the most efficient, state-of-the-art power plants you would ever want to see.

The flightline operations and storage area, provided under the NATO-funded interim base project, features pre-engineered facilities that will house the command post and communications center, central security control, maintenance shops, and a storage area for the TELs and LCCs until the permanent GAMA facilities come on-line in 1986. The permanent operational, storage and security facilities are NATO funded, while there is a continuing development of the MCP-funded items for troop support and administration. Although the interim construction provided more than its fair share of engineering challenges, most of the engineering effort has been directed toward completing the permanent construction — $108 million worth of facilities funded by the FY 82, FY 83, FY 84 and FY 85 MCPs.

EARLY CONSTRUCTION of GLCM shelter



From initial master planning and project development to construction management and the acceptance of facilities, Air Force engineers have been working with our design and construction agent, the Navy's Office in Charge of Construction (OICC), Madrid, Spain. Building Comiso demanded a coordinated effort among the individuals who designed the weapon system, the operators and maintainers who would be using the facilities, the support personnel that provided the community services, and the engineers who tied the requirements together. Comiso is a textbook example of the programming process in action. As requirements were generated, a plan to satisfy those requirements developed, funding avenues were determined, and the construction started — a straightforward process, but one filled with constraints, unknowns, and problems:

- Time constraints and the construction practices found in the area dictated the type of facilities that could be built
- Land constraints and explosive safety considerations limited siting options
- Funding limitations and phasing required program changes
- Weapon system and operational concept changes resulted in midstream corrections, etc.

These, and a myriad of other factors highlighted the necessity for a comprehensive planning approach that considered the building, the people in it, and the grounds surrounding it. At Comiso, the results of that process created a base destined to be an outstanding place to work and live, with, perhaps, future design award winners built all over the installation. State-of-the-art construction techniques, alternative heating systems, and functional relationships were all considered and incorporated into the design. The pedestrian mall, connecting most of the community support and administrative facilities, will dominate the site, while facilities such as the composite recreation center, which includes the bowling center, gymnasium, base library, multipurpose rooms, and some other spaces, will meet the needs of the base population in an efficient, yet people-oriented manner.

The last major construction effort will be the permanent NATO facilities which parallel the GAMA construction being completed at Greenham Common. A total of $150 million in construction is in progress at Comiso, the newest base in the Air Force. It's being built on time, within cost, and with quality construction — testimony to what dedicated people can accomplish through adroit use of the programming process.

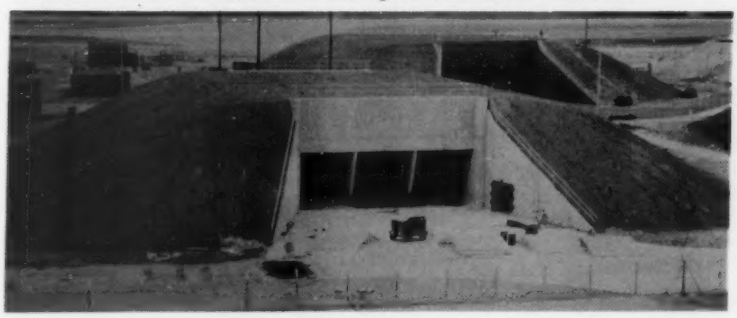
The Overall Effort

Similar construction programs at the other GLCM sites are in various stages of planning, programming and design. These construction projects have, and will continue to generate all sorts of engineering challenges. These challenges are being met by Air Force engineers, our design and construction agents (the Navy's OICC and the Army Corps of Engineers), and the engineering staffs of our NATO allies. As noted in this issue in the interview with Brig. Gen. Joseph A. Ahearn, USAFE's deputy chief of staff, Engineering and Services, the outstanding efforts by the host nation engineers cannot be overemphasized. The British Property Services Agency, the Italian Geniodife, and others work hand-in-hand with our engineers as weapon system requirements are incorporated into facilities. Varying site conditions, political issues, extremely tight time lines and unique system requirements make the beddown of GLCM in Europe a noteworthy effort, and an outstanding opportunity for the Air Force Engineering and Services community.

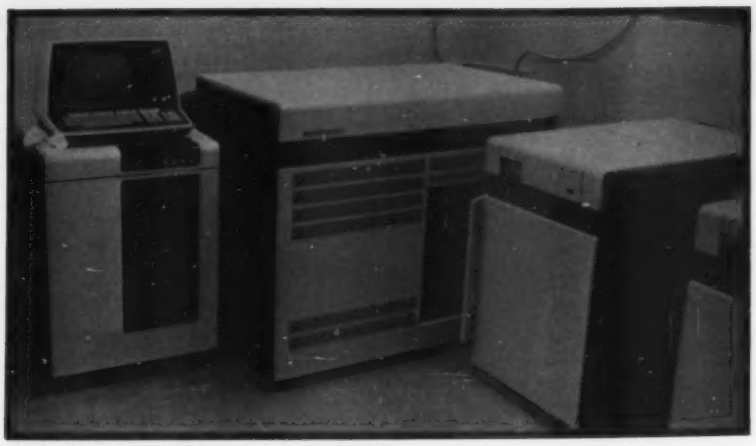
Maj. Jack T. Baker is assigned to the Readiness Directorate of HQ USAFE/DE. He holds the bachelors and masters degrees in Industrial Engineering from Ohio State University. Additionally, he holds the masters in Business Administration from Wright State University. He is a registered professional engineer in Ohio.

GAMA CONSTRUCTION is shown nearly complete.

FINISHED SHELTERS will each house one flight of missiles with alert crew.



The Computer Comes to PACAF's Construction Program



PRESENT for PACAF is the new Wang VS-100.

by Lt. Col. Robert E. Dant

How can we squeeze more money out of our construction dollars? Well, being able to more closely monitor how construction funds are spent certainly helps to avoid duplication of effort and improve communications. This saves time and money.

Managing our construction dollars is made difficult because of the large volume of project information. Also, our construction programs are dynamic. Base and command priority numbers often change. Program authorizations and construction working estimates can vary. Projects get added or deleted by fiscal year. We have many people who are involved in monitoring the programming, designing, funding and inspection of construction work. Each player puts in a certain portion of the needed data. When you add the complexities of joint funding between the U.S. and host nations, and possible multiple sources of construction dollars, you can see that keeping track is not only involved, it is a massive headache! Painful or not, having timely, accurate information on each project is absolutely essential to avert wasting construction dollars. We do a good job of monitoring now. But, we can improve.

Doesn't CECORS provide us this monitoring capability now? No. We don't readily get the information that we need in a timely way. CECORS does not provide "real time" information. Data may be 4 to 6 weeks old, and sometimes unreliable. It is no reflection on the CECORS monitors. They are trying. But, updating CECORS data has many complexities, numerous people, and a large number of opportunities to introduce errors. This has changed significantly with the introduction of our new MAJCOM minicomputer systems. While using the unchanged CECORS data received from each base (152 characters of data) project managers can add to the data file their own unique bits of information, and can, in turn, immediately see information that is added by other programmers, designers, and construction monitors at the headquarters. No manager can change another's data. But, each manager has the new visibility of information. This is important. If a designer/engineer sees something unusual about a project that involves programming, the engineer cannot simply change the programmer's data. Instead, there must be discussion with the programmer to determine if there is a problem and -- if so -- have it solved. Each person can only change those portions of CECORS data that pertain to their respective functional area.

The minicomputer also makes it possible to match projects to funding. Do you have any "unfunded" projects under construction? We did! And, we probably wouldn't have caught these errors without the help of our new minicomputer. Once CECORS data were loaded into the computer, all "unfunded" projects listed in our CECORS were cross-checked with projects actually under construction. Results were surprising. Were a few people embarrassed? Yes. But, before you pass judgement, check. You may have a few "unfunded" projects under construction. The reason is partially that manual cross-checking of project data is intensely time-consuming and tedious. A minicomputer quickly locates discrepancies.

Do you have projects that the base engineers are busy designing, but the programmers are reworking because they were cancelled two months ago? It happens; maybe even to you. However, when both designers and programmers use the same central data file to monitor the progress of projects, it's easier to avoid errors. Our automated information management system provides this capability because the "right hand" is able to see what the "left hand" is doing. Project information is no longer compartmentalized and is made available from a common pool, with the facility, speed and flexibility offered by our new system. Some commands may have had better reporting processes and pro-

PACAF/DE, Col. Roy Goodwin, cuts the ribbon as Capt. John Heiser, Capt. Barry Wentland and Marti Tadaijong look on.

ducts. We did not. Our new system permits identification and listing of all unfunded prior fiscal year projects. We can also automatically print a project listing of discrepancies, sorted by base, to help bases ensure data integrity.

Here is the best part. Our minicomputer system couldn't have come at a better time. Construction programs in PACAF have increased dramatically in just the past few years. The post-Vietnam era of the mid-1970s produced a lull in the construction program. This has changed. The FY 85 PACAF Military Construction Program submitted to the Office of the Secretary of Defense totalled $160 million, twice the size of the FY 82 MCP, three times the size of the FY 81 MCP, and a 1,600 percent increase of the MCP submittals of the 1970s. The FY 86 MCP is expected to total more than a quarter of a billion dollars. Many of our projects are unique to PACAF. Among these are the Combined Defense Improvement Projects (CDIP) in Korea, and the Facilities Improvement Program (FIP) in Japan. Host nation funds amounting to more than $300 million are used in these programs to support facilities construction. The combined military construction program, nonappropriated funds, operations and maintenance, and military family housing design and construction program managed by PACAF is more than $1.2 billion. Automated information management is essential to properly monitor these projects. But, existing methods of monitoring were neither timely nor sufficiently accurate.

PACAF's growing construction program required either many more people to manage programs or new ways of doing business. Getting the additional manpower was out of the question, even though we could reallocate from existing resources. Therefore we needed to "work smarter, not harder." Because computer technology of the 1980s had advanced to "user-friendly" and "menu-driven" systems, even laymen could operate these systems and develop their own reports and applications without being computer programmers. The benefits were obvious. Engineering and Services was still pretty much in the horse and buggy era in terms of efficiently meeting customer needs, using manual methods of transferring paperwork and moving pieces of paper from one file to another. To solve these problems, an automated information management system was developed and installed in less than 9 months. A data automation requirement (DAR) was approved by our Data Automation people in February, 1983, and a minicomputer was leased in May of 1983. Site preparation work was completed in July of 1983 and our new PACAF system became operational in August.

PACIFIC IMS is inaugurated.

Being an overseas command presented some unique problems in getting our minicomputer system approved, procured, installed and operational. Fortunately, Headquarters Tactical Air Command/DE had previously plowed much of the ground in this area, so we were not heading into completely unknown territory. However, it still wasn't easy. Traditional ways of doing things and parochial concerns surfaced about the people of E&S getting their own computer system, and initial concern that "non-computer" people (i.e., engineers and services people) wouldn't know how to operate minicomputer systems. Fortunately, the concerns are unfounded. Additionally, we came into the automated information management age at an opportune time, just as the promise of an expanding marketplace motivated manufacturers to make their products useful to far more people.

A computer did a lot for us. And it can do a lot for you. It can also do a lot to you if you are not careful. Like any management tool, it's only as good as the people who put it together and the managers who use the data to make decisions. Nobody can program a computer to eliminate dumb decisions, but computers can enhance a good manager's ability to make better, more informed decisions and reduce the tedious, time-consuming tasks involved in assembling and cross-checking data. In this regard, our new MAJCOM minicomputer has really been a blessing. As we get to know our system better, we anticipate that even more benefits will surface. In the meantime, we're using our new computer capabilities to make sure we get more construction for the money, by knowing more about what we're doing, sharing the information among our management family, and coming to better, faster decisions. We've made significant improvement by quickly identifying projects in CECORS listed as "unfunded" but which are actually under construction; and by ensuring that our design effort is applied only to approved projects.

Lt. Col. Robert E. Dant is Chief of the Maintenance Management Division, HQ PACAF/DE. He earned his bachelor of science in Mechanical Engineering at the University of Hawaii; his master of science degree in the same field at Arizona State; an additional master of science degree in Management at the University of Arkansas; and his Doctor of Education at the University of Southern California. He has served at base and MAJCOM levels. Additionally, he is a registered professional engineer in Ohio. He previously taught heating, ventilating and air conditioning and energy monitoring and control systems at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio.

Change of Command:
Colonel Smith New Center Commander

New Commander of the Air Force Engineering and Services Center, Tyndall AFB, Fla., is Col. Jerry A. Smith, who moves up to the position from his former responsibilities as Vice Commander.

He succeeds Col. Joseph T. Callahan Jr., who retired from active duty after nearly 30 years of active duty. New Vice Commander is Col. Roy G. Kennington, who moves to his new assignment from Headquarters, Tactical Air Command, Langley AFB, Va., where he was Director of Housing and Services.

Maj. Gen. Clifton D. Wright Jr., Air Force Director of Engineering and Services, conducted the March 2 change of command ceremonies at the Center. Attending were numerous military and civic leaders.

Colonel Callahan came to the Center in August of 1981 and assumed command in August of last year. He received the second oak leaf cluster to the Legion of Merit for his service as chief of the Center's Energy Group, as Vice Commander and Commander. The citation accompanying his award read, "Colonel Callahan's outstanding achievements and his dynamic leadership and initiative resulted in significant improvements in Engineering and Services capabilities to sustain Air Force global requirements."

He held numerous key assignments. He was the assistant to the commander of the Saudi Arabian operating location of the Air Force Logistics Command responsible for the large facilities support projects, enabling the Royal Saudi Air Force to beddown the F-5 and the F-15 aircraft. He achieved dual status in his career as a pilot and navigator, and flew for the Military Airlift Command. He is a graduate of Tufts University with a degree in Civil Engineering, and earned his master's degree in the same field at Texas A&M under an assignment sponsored by the Air Force Institute of Technology.

Colonel Smith came to the Center in August of 1983 from Nellis AFB, Nev., where he was the Deputy Commander for Civil Engineering, 554th Operational Support Wing.

A native of Morganton, N.C., he is a 1960 graduate of North Carolina State University where he earned the bachelor of science degree in Civil Engineering. He was commissioned in 1960 through the Air Force Reserve Officer Training Corps. He graduated in 1967 from the Air Force Institute of Technology with a master's degree in Astronautics — Space Facilities. He completed the Industrial College of the Armed Forces by correspondence, and the Air Command and Staff College through the seminar program.

During his Air Force career he has been assigned to Nellis AFB, the Air Force Regional Civil Engineer's office, Bangkok, Thailand, Hurlburt Field, Fla., HQ Pacific Air Forces, Hickam AFB, Hawaii, Holloman AFB, N.M., Clark AB, Philippines and George AFB, Calif. In the Bangkok assignment, he was Chief of the Programs Branch and later the Engineering Branch. He again was Chief of the Programs Branch with the 834th CES at Hurlburt. At PACAF, he was first the Chief of the Force Planning Division, then Chief of the West Pacific Branch. At Holloman, he was Chief of the Operations and Maintenance Branch for the 49th CES. At Clark AB, he was assigned as a member of the PACAF Inspector General team, first as chief of the civil engineering branch and later chief of the support division. He assumed command of his first civil engineering squadron with the 35th CES at George AFB.

Colonel Kennington earned his bachelor of Business Administration at the University of Mississippi, and later earned his master's degree in Management at Ball State University.

He was commissioned through the Air Force OTS program. He has served at Mountain Home AFB, Idaho, Shemya AFS, Alaska, Fairchild AFS, Washington, Offutt AFB, Neb., both Weisbaden and Munich in Germany, and at Tyndall AFB. He has served as a food services officer and services squadron commander, on major command staffs and in joint services assignments.

Colonel Smith

Colonel Kennington

CHANGE OF COMMAND CEREMONIES with Major General Wright, Colonel Callahan, and Colonel Smith.

He completed Squadron Officers' School and Air Command and Staff College in residence, and the Industrial College of the Armed Forces by correspondence.

In his previous assignment at HQ AFESC from 1978 to 1980, he was Chief of the Services Division, Chief of the Food Management Division and Deputy Director of Housing and Services. He moved to Langley AFB and Headquarters TAC in November of 1980 and served as Director of Housing and Services until his assignment to Tyndall AFB in February.

tecnotes

SUBSTITUTE METHACRYLATE MONOMER — The current method of repairing severely cracked Portland cement pavements is slab replacement, resulting in extremely high maintenance and repair expenditures. The use of a substitute methacrylate monomer, on a slab-by-slab basis, has yielded promising results. A guide specification for its use on small surface areas is available upon request from the MAJCOM pavement engineers. A guide specification for large surface areas is being investigated. (AFESC/DEMP, Mr. Millard, AUTOVON 970-6333)

NEW TANK ENTRY PROCEDURE — HQ AFESC/DEMM and the Aero Propulsion Laboratory, Wright-Patterson AFB, Ohio, are developing guidelines for a new fuel tank entry procedure using nitrogen, an inert gas, to displace oxygen prior to entry. It has not been previously used by civil engineering. Reducing oxygen levels to below 12 percent by volume makes flame propagation virtually impossible. The new process will shorten tank preparation time by eliminating the process now used to free vapors, and will provide safer conditions for entry at the same time. Guidelines will be published this summer. (AFESC/DEMM, Mr. Mumme, AUTOVON 970-6357)

ASSESSMENT INVENTORY AND DISPERSION SYSTEM — A new state-of-the-art emissions and dispersion computer model is designed for field use, using graphical input to a microcomputer. A user-friendly system, it will enhance the ability to conduct air quality evaluations and predictions of impact. The contractor, Wilson-Hill Associates, has determined the IBM Personal Computer will serve as the primary machine for development of the system. A version will also be developed for use on the Apple II Plus Computer. Due to EPA requirements for computer models, the system will be written in FORTRAN with adequate comments to allow easier conversion to other computer languages. Full-scale testing is planned for August. (AFESC/RDVS, Lt. Seitchek, AUTOVON 970-4234)

REMOTE SENSING OF POLLUTANTS - - An environmental laser remote-sensing system is under development. When operational, the system will measure pollutant concentrations in the atmosphere. Potential uses include identification of hazardous waste sites, tracking hydrogen chloride releases during Space Transportation System launches, and monitoring spills of toxic materials. (AFESC/RDVW, Capt. Lubozynski, AUTOVON 970-4234)

CERIUM FUEL ADDITIVE TESTING — A joint Air Force-Navy field test will assess the ability of a cerium fuel additive to reduce opaqueness of jet engine test cell emissions. The test will be completed this summer at the San Diego Naval Air Station. Reduction of test cell emissions opacity will aid in complying with visible plume opacity regulations. Complete testing will assess effects of the additive on soot particle size and nitrous oxides concentrations, as well as any adverse effects on the turbines tested. (AFESC/RDVS, Capt. Kerch, AUTOVON 970-4234)

POLYURETHANE FIBERGLASS (UF) MATS FOR BOMB DAMAGE REPAIR — UF mats are being purchased by PACAF for use over crushed stone crater repairs. Mats are saturated with a hardening agent which then makes them rigid and useful for runway repairs. The polyurethane agent can be mixed by hand in buckets and efficiently applied to the fiberglass almost as effectively as the spray method originally recommended. The finished mats can be stored against contigencies. When used, they provide sufficient rutting resistance to make the crushed-stone repair truly all-weather, allowing greatly reduced compactive effort (only 10 roller coverages), and less stringent control of specifications. Results vary with the quality of the repair foundation. Traffic tests have been successfully conducted over water-soaked crushed stone, compacted dry beach sand and uncompacted small ballast stone. The frequent relevelling required in the tests involving just sand and uncompacted stone make the latter procedure useful only as a last resort. (AFESC/RDCR, Capt. Beyer, AUTOVON 970-6322)

STRUCTURAL ANALYSIS — Dial-up access to the AFESC CYBER computer is available for structural analysis computations. NONSAP, ABACUS and other structural analysis computer software is available by AUTOVON telephone lines from your remote terminal. (AFESC/RDCS, Capt. Rosengren, AUTOVON 970-6277)

DESTRATIFICATION FANS AND SMOKE DETECTORS — An evaluation of the effects of destratification (ceiling) fans on smoke detector response to fire has been completed. Test results revealed that these fans adversely affect the ability of smoke detectors, spaced to meet current installation requirements, to detect fires. Criteria have been developed which reduce the maximum area protected by each detector by 50 percent. This reduced spacing will eliminate any adverse affects caused by the fans. (AFESC/RDCS, Capt. Walker, AUTOVON 970-6282)

SOFTWARE FOR SERVICES INFORMATION MANAGEMENT SYSTEM (SIMS) — Programs for the food service module of SIMS are being developed by the Air Force Data Systems Design Center (PREF) at Gunter AFS, Ala., with an August target for completion. (AFESC/DEHF, Capt. Rea, AUTOVON 970-6199)

SIX HIGH-CAPACITY GENERATOR SETS HAVE BEEN DEVELOPED BY CEMIRT for temporary, emergency use and during planned power outages. Previously, such requirements could only be met through the Army or through commercial resources. The new equipment includes three 1,000 kilowatt and three 500 KW continuous-duty generator sets which are each available for worldwide deployment. AF/LEE first notified MAJCOMs of the generators in April, 1983. A policy letter governing the use of the sets was sent to MAJCOMs Aug. 29, 1983. (AFESC/DEC, Mr. Browning, AUTOVON 970-6367)

General Wright New SAME President

Maj. Gen. Clifton D. Wright Jr., Air Force Director, Engineering and Services, became the new president of the Society of American Military Engineers in ceremonies at the society's convention in St. Paul, Minn., succeeding Rear Adm. William M. Zobel, the Navy's Chief of Civil Engineers and the Commander of the Naval Facilities Engineering Command.

General Wright will lead the society and its 25,000 membership in a program aimed specifically at:

- Productivity
- Professionalism
- Leadership and management
- Energy security and conservation
- Automation and electronics
- Engineering education, and
- The shortage of engineers and scientists.

General Wright said that the overall theme of his term will be "helping our nation get more construction for the money."

He said that one key to the future is productivity. "We in SAME can, and should, focus on what we can do to help improve the construction industry's ability to deliver a quality product on time, within cost," he said. Pointing out that "the problems with getting more construction for the money exist at all levels and the problem needs to be attacked from several directions," he said, "the society has the opportunity to offer a forum that can serve us well in our collective effort to solve a national problem."

PLAQUE with a mounted gavel honoring his year as SAME's president is presented to Admiral Zobel by General Wright.

Key Speakers

Addresses by Gen. John W. Vessey Jr, Chairman of the Joint Chiefs of Staff, and Lt. Gen. Robert E. Kelley, Vice Commander, Tactical Air Command, were highlights of the convention.

COL. GOODWIN is congratulated by General Wright after receiving the Newman medal.

General Vessey cited the important role played by engineers in the nation's defense, and particularly the vital role played by military engineers in force projection.

General Kelley lauded the positive effects of engineers on the ability of TAC to carry out its mission, and he particularly singled out Brig. Gen. George E. (Jud) Ellis, deputy chief of staff, Engineering and Services, HQ TAC, for making outstanding contributions.

Air Force Honors

Col. Roy M. Goodwin, deputy chief of staff, Engineering and Services, HQ Pacific Air Forces, was awarded the Newman Medal for outstanding civil engineering achievements. (See page 20.)

Col. Jerry A. Smith, Commander, HQ Air Force Engineering and Services Center, Tyndall AFB, Fla., received one of three awards given to military organizations for outstanding support to SAME posts. The award honors the Center's support of the Panama City Post.

General Wright, Admiral Zobel and Lt. Gen. James K. Bratton, Army Chief Engineer and Commander of the Corps of Engineers, participated in two workshops. The technical panel, "Military Facilities that Meet the Needs of the Nation," was chaired by Frederick J. Clark (Lt. Gen., USA, ret.). The sustaining members workshop was chaired by Carroll N. LeTellier (Maj. Gen., USA, ret.).

A delegation of more than 30 Air Force officials attended the convention in addition to local chapter representation involving Air Force People.

New Officers

New officers for the coming year are:

- Vice president — William H. McMurren, Morrison — Knudsen Co., Inc., Boise, Idaho.
- Directors — Edward G. Anderson (Col., USA, ret.), associate principal engineer, Bovay Engineers, Inc., Albuquerque, N.M.; Rear Adm. John D. Bossler, Director, Charting and Geodetic Services, National Oceanic and Atmospheric Administration, Rockville, Md.; Henry Michel, chief executive officer, Parsons Brinckerhoff, New York, N.Y.; Thorwald Roger Peterson (Col., USA, ret.), chief executive officer, Booker Construction Managers, Inc., St. Louis, Mo.; Harry P. Rietman, Associate Director, Air Force Engineering and Services, Washington, D.C.; Claude L. Roberts Jr. (Col., USA, ret.), manager, government projects, Harbert International, Inc., Birmingham, Ala.; and Capt. James M. Rugless, Navy Civil Engineering Corps, student, Industrial College of the Armed Forces, Washington, D.C.
- Appointed Air Force Directors — Lt. Col. Jeffrey H. Markey, special assistant to General Wright, Washington, D.C.; and Col. Jimmy Dishner, Lebanon, N.J., U.S. Air Force Reserve, a member of General Wright's Design Advisory Committee.

Promotions

COLONEL SELECTEES

Barrows, Charles V.
Beauchemin, Alfred E. III
Brannon, George E. Jr.
Choate, John S. *
Craig, William R. III **
Evans, Charles W.
Maloney, John J. **
Manekofsky, Harvey *
Mayhew, Jason F.
Murphy, George T. **
Nay, Marshall W. Jr.
O'Such, Robert J. * **
Parker, Evans T.
Pease, Birney T.
Piver, Charles R.
Smith, Edward M. *
Tessier, Richard J.**
Williams, David O.

LIEUTENANT COLONEL SELECTEES

Armstrong, Donald J. Jr.
Bartlow, Robert L.
Bayless, Robert F. **
Bryan, Oscar V. Jr.
Busch, William W.
Cannan, David M. *
Carreras, Gilbert D.
Carter, Robert E.
Cole, Herman A. Jr.
Cornelius, Kenneth A. *
Flynn, Dennis
Fortner, John M. **
Frey, Robert C.
Garcia, Paul D.
Gibson, Gary C.
Goddard, Walter P.
Grant, Russell J.
Haeusser, Horst G.
Hains, Paul W. III
Hanes, Richard M.
Hansen, Maurice A.
Heuser, William H. Jr.
Hilber, Ralph S.
Honeycutt, David F. **
Jackson, Charles A.
Kelly, Barry
Leitch, Walter T.
Leroy, Michael D.
Lettau, Ulrich H.
McDermott, Wayne D.
McNickle, Paul J.
Metzinger, Gary D. **
Miller, Michael J.
Nelson, Denny R.
Newton, Joel R.
O'Brien, Davis S.
Olfenbuttel, Robert F. ****
Pack, Nathan L. Jr. **
Polley, Ralph C. **
Rhode, Charles G.
Rothenberg, Karsten H.
Rule, Robert P.
Rusinak, Vincent R. Jr.
Sackvillewest, Arthur J. III
Safrit, David M. *****
Sanders, Onus F. Jr.
Schwenk, Daniel G. **
Stewart, Todd I.
Termaath, Stephen G. * ****
Torgerson, Ronald A.
Toussaint, Paul J.
Underwood, Howard W.
Voorhees, Ronald R.
Wadlington, James T. Jr.
Walker, Paul G. Jr.
Weck, Fred H.
Wilson, Thomas F.

MAJOR SELECTEES

Andrews, Thomas R.
Arnold, Walter A.
Bartley, Barbara A. **
Bartol, Thomas J.
Baumgartel, Gary P.
Becker, Harold L. Jr.
Beckett, Edward J. **
Berendt, Steven E. **
Best, Eugene S.
Bierck, William J. Jr.
Borysewicz, Michael D.
Bossen, Dennis A. **
Bunner, Randle K.
Burton, David H. Jr.
Combs, Doyle F. Jr.
Coullahan, Patrick M.
DeMoret, Guy W. II *
Descheneaux, Ronald V.
Doucette, Richard E.
Eagan, Patrick D. **
Egan, Christopher D.
Einwaechter, James R.
Estes, John H. IV
Fleming, Norman D. ***
Fogleman, Dean G.
Foster, Steven R.
Fravel, Neil H.
Gilbert, Russell L. *
Glidewell, Donnie D.
Griffin, Gregory S.
Guy, Homer L.
Hauck, Louis F.
Heiser, John L. *
Henthorn, Charles R. **
Holmes, Vernon I.
Holt, James R,
Hopkins, John D.**
Horsfall, John D.
Ibarra, Guillermo
Kaneda, Kenneth G.
Kelly, Walter T. **
Kenna, Thomas M.
Kennedy, Frederick C. **
Kwan, Anthony J.
LeGrand, Philip J.
Lloyd, Richard M.
Logan, Joseph M.
Manning, Russell T.
McNeilly, Richard A.
McTamney, John M. III
Miller, Edward L.
Murphy, Donald E.
Padgett, Richard E. ****
Peak, John C.
Rakoskie, Dean A.
Ray, Philip M.
Reagan, Michael J. **
Repaal, Douglas L.
Riggs, Gregory E.
Riggs, Thomas M.
Rodie, William B. **
Root, William L.
Sanders, Troy L.
Sasseville, Richard R.
Scott, Charles W.
Shalonis, Paul J.
Slone, Melvin S. Jr. **
Stanley, Tad A.
Trimble, Charles V. **
Wentland, Barry R.
Wiles, Carl J. Jr.
Wypiszynski, Steven

* Selected below the zone
** Services officer
*** Developmental engineer
**** Biomedical officer
***** Contracting officer

The Best of Air Force Engineering and Services Honored.
(See Winners, Pages 20-23)

CURTIN AWARD
Gen. Curtin, Col. Allen

INNKEEPER AWARD
Mr. Willson, Col. Begansky, Gen. Wright

MINTON AWARD
Mr. Millican, Gen. Dougherty

SENIOR NCO OF THE YEAR
Gen. Wright, SMSgt. Jackson, Mrs. Jackson

Department of the Air Force
AF Engineering & Services Quarterly
HQ AFESC
Tyndall AFB, Florida 32403

Postage and Fees Paid
Fourth Class Bulk Rate

U.S.MAIL

★U.S. Government Printing Office: 1984-746-133/1